PUBLICATIONS OF THE ARNOLD ARBORETUM, No. 4

PLANTAE WILSONIANAE

AN ENUMERATION OF THE WOODY PLANTS COLLECTED IN WESTERN CHINA FOR THE ARNOLD ARBORETUM OF HARVARD UNIVERSITY DURING THE YEARS 1907, 1908, AND 1910

BY E. H. WILSON

EDITED BY

CHARLES SPRAGUE SARGENT

PART I

ISSUED, JULY 31, 1911

CAMBRIDGE
THE UNIVERSITY PRESS
1911

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PREFACE

ALTHOUGH important collections of plants had been made in western Szech'uan by the French missionary Armand David as early as 1870, the world knew little of the remarkable beauty and richness of the flora of west central China until Augustine Henry, an officer of the Chinese Imperial Maritime Customs Service stationed at Ichang from 1882 to 1889, sent to England the dried plants which he had collected in western Hupeh. An examination of these collections, the first of which reached England in 1886, disclosed many new genera and a great number of new species. Henry collected only herbarium specimens and a few lily bulbs, and took no steps to introduce into western gardens his remarkable discoveries.

It was evident, however, that from no other part of the world could so many new plants suitable to adorn the parks and gardens of temperate climates be found as in western China; and in 1897 I advised the late James H. Veitch, at that time the Managing Director of the well-known nursery firm of James H. Veitch & Sons, of London, to send a collector to Hupeh to collect the seeds of Henry's interesting discoveries, and to make additional observations on the flora of that region.

Mr. E. H. Wilson, a student at the Royal College of Science, South Kensington, and previously a young gardener in the Royal Gardens at Kew, then twenty-three years old, was selected on the recommendation of Sir William T. Thiselton-Dyer for the undertaking. He left England on April 11, 1899, traveling by the way of Boston in order to visit the Arboretum, and then, after a short stay in Yunnan, where he went to confer with Dr. Henry, who was then stationed at Szemao, he reached Ichang

early in February, 1900. The next two years were devoted by him to collecting in the mountains of western Hupeh. From this journey Wilson returned to England in April, 1902, and went to China again in January of the following year with a special commission to collect *Meconopsis integrifolia*, found only in the alpine regions of the Thibetan border, which he now explored for the first time. During these two journeys Wilson sent to England the seeds of a large number of plants and many lily bulbs, and made a considerable herbarium. His work, however, in western China, was not completed. Under instructions from Mr. Veitch, Wilson had paid attention only to 'plants of supposed horticultural value, and had neglected conifers and many other important plants almost entirely, no one then suspecting that on the slopes of the mountains which rise from the plains of China to the Thibetan plateau is probably the greatest aggregation of conifers in the world.

It seemed desirable, therefore, that the work which Wilson had so well begun should be completed, and the Arboretum was fortunate in securing his services for another Chinese exploring expedition. He left Boston on this journey on December 31, 1906, and returned in May, 1909. This journey was very successful. He sent back seeds, often in large quantities, of more than 1000 species of trees and shrubs, many lily bulbs, the cuttings of willows and poplars, the roots of a few other trees and shrubs, an herbarium of about 50,000 sheets, and a collection of 720 photographs. In the autumn of 1908, when he was among the forests of conifers, these trees were not bearing cones. It was important that these trees should be introduced into the Arboretum, and in April, 1910, Wilson, for the fourth time, went to China for the purpose of carrying out this plan, returning a year later with large and valuable collections.

In the *Plantae Wilsonianae* is found an account of the specimens collected by Wilson in these two journeys, with descriptions of new species and varieties, and the enumeration of several important groups as they are represented in China. It is impossible yet to form an accurate opinion of the number of new

species discovered by Wilson in his four journeys. It is safe to say that few travelers, however, have discovered as many new plants; certainly no other man has ever introduced so many woody plants of exceptional interest and value into cultivation. This will appear when it is realized that in the first volume of the *Plantae Wilsonianae*, which we believe contains the enumeration of about one-half of Wilson's Arboretum collections, there are described two new genera, two hundred and twenty-five new species and one hundred and sixty-two new varieties of woody plants. In earlier publications have appeared descriptions of two new genera and about one hundred new species of woody plants discovered by Wilson in his first journeys.

In the preparation of this work the Arboretum is indebted to a number of European specialists who have elaborated several different groups, and I take this opportunity to extend to them the cordial thanks of the Arboretum.

C. S. Sargent.

May, 1913.

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PINACEÆ.

PINUS L.

Determined by GEORGE RUSSELL SHAW.

Pinus Armandii Franchet in *Nouv. Arch. Mus. Paris*, sér. 2, VII. 95, 96 t. 12 (*Pl. David.* I. 285) (1884).

Pinus scipioniformis Masters in *Bull. Herb. Boissier*, VI. 270 (1898).
Pinus koraiensis Masters in *Gard. Chron.* ser. 3, XXXIII. 34, f. 18, 19 (not Siebold & Zuccarini) (1903).
Pinus Mastersiana Hayata in *Gard. Chron.* ser. 3, XLIII. 194 (1898).
Pinus Armandii, var. *Mastersiana* Hayata in *Jour. Coll. Sci. Tokyo*, XXV. art. XIX. 215, f. 8 (*Fl. Mont. Formos.*) (1908).

Western Hupeh: Sze-kou-tze, east of Hsing-shan Hsien, December 1907 (No. **2505**); northwest of Hsing-shan Hsien, alt. 2000 m., September 1907 (No. **2506**); Ta-wan, alt. 1500 m., June and July 1907 (No. **2509**); Hsing-shan Hsien, July 1907 (No. **2511**). Western Szech'uan: Wa-ssu country and mountains west of Wên-chuan Hsien, alt. 1500–2500 m., July and November 1908 (No. **1151**); Fei-yueh-ling, Ching-chi Hsien, alt. 2500–2800 m., August 1908 (No. **1387**); Pan-lan-shan and Tachien-lu, alt. 2500–3300 m., June and November 1908 (No. **1470**).

Pinus Bungeana Zuccarini in Endlicher, *Syn. Conif.* 166 (1847).

Western Hupeh: Pa-tung Hsien, November 1907, January 1909 (No. **2512**).

It is interesting that this species, originally described from cultivated plants near Pekin, was found by Mr. Wilson growing wild on the mountains of Hupeh.

Pinus Massoniana Lambert, *Gen. Pin.* I. 17, t. 12 (1803).

Western Hupeh: Hsing-shan Hsien, alt. 1300–1500 m., July 1907 and January 1909 (No. **1469**); Ichang and vicinity, alt. 1000–1500 m., December 1907 (No. **1480**); alt. 1300 m., April and December 1907 (No. **1481**); alt. up to 1300 m., May and December 1907 (No. **2503**); Chang-yang Hsien, alt. 1500 m., November 1907 (No. **1482**). Western Szech'uan: Wa-shan, alt. 1300 m., November 1908 (No. **1378**); alt. 1100–1500 m., September 1908 (No. **1476**); Kia-ting and vicinity,

west to Mupin, alt. up to 1000 m., May and November 1908 (No. 1468). Kiangsi: foot hills about Kiu-kiang, alt. 300 m., August 1907 (No. 1744). Hongkong: Happy Valley, alt. sea-level–600 m., April 1909 (No. 1483).

Pinus densiflora Siebold & Zuccarini, *Fl. Jap.* II. 22, t. 112 (1842).

Pinus Henryi Masters in *Jour. Linn. Soc.* XXVI. 550 (1902).

Western Hupeh: Hsing-shan Hsien, July 1907 (No. 1484); alt. 1300 m., May 1907 (No. 1490); alt. 1500 m., January 1908 (No. 1495); alt. 1300 m., July 1907 (No. 1497); alt. 1600 m., May 1907 (No. 1498); alt. 1600 m., May 1907 (No. 1499); Sheng-ting-chia, May 1907 (No. 1496); Sze-kou-tze, east of Hsing-shan Hsien, alt. 1300–2000 m., December 1907, January 1908 (No. 1485); Ma-fou-ling, west of Hsing-shan Hsien, alt. 1500–2000 m., January 1908 (No. 1486); alt. 1600 m., January 1908 (No. 1487); Fang Hsien, alt. 1600–2500 m., May 1907 (Nos. 1488, 1494); Ta-wan, Patung Hsien, alt. 2200 m., May, July and December 1907 (No. 1489); northwest of Hsing-shan Hsien, alt. 1600 m., January 1909 (No. 1492). Kiangsi: Ku-ling, alt. 1500 m., July 1907 (No. 1745); alt. 1400 m., August 1907 (No. 1747).

Pinus yunnanensis, Franchet in *Jour. de Bot.* XIII. 253 (1899).

Western Szech'uan: Mupin and vicinity, alt. 1600–2300 m., November 1908 (No. 1097); Wa-ssu country, Wên-chuan Hsien, alt. 1600–2300 m., November 1908 (Nos. 1369, 1370); 12 kilometers from Mupin, Yung-tsen, alt. 1300 m., November 1908 (No. 1376); Mupin, alt. 1300–1600 m., November 1908 (Nos. 1390, 1395); alt. 1300–2000 m. (No. 1399); alt. 1600 m. (No. 1464); Nitou, Chin-chi Hsien, alt. 1500–1600 m., November 1908 (No. 1393); Malie, Wa-shan, alt. 1600 m., November 1908 (No. 1394); Tung Valley, alt. 1300–1600 m., November 1908 (No. 1396); Wa-shan, alt. 1600 m., September 1908 (No. 1471); Mupin, alt. 1500–2000 m., November 1908 (No. 1472); descent from Tachien-lu, alt. 2300 m., August 1908 (No. 2501).

Pinus densata Masters in *Jour. Linn. Soc.* XXXVII. 416 (1906).

Pinus prominens Masters in *Jour. Linn. Soc.* XXXVII. 417 (1906).

Western Szech'uan: Chito village, 16 kilometers west of Tachien-lu, alt. 3300 m., July 1908 (No. 905); Wa-ssu country, Wên-chuan Hsien, alt. 1600–2300 m., November 1908 (No. 1368); 20 kilometers north of Tachien-lu, alt. 2800–3300 m., October 1908 (No. 1397); Tung Valley, alt. 1100 m., October 1908 (No. 1398); Orang-

che, Valley of Ya-lung, type locality, alt. 3000–3600 m., October 1908 (Nos. **1465**, **1466**, **1467**, **1478**); alt. 4000 m. (No. **1479**); forests of Ta-pao-shan, northeast of Tachien-lu, alt. 3500 m., July 1908 (No. **1491**); descent of Hsao-chin-ho, Mou-kong-ting, alt. 2300–2600 m., June 1908 (No. **1500**); north of Tachien-lu, alt. 3300 m., July 1908 (No. **2502**); Moshi mien, southeast of Tachien-lu, alt. 1600–2000 m., October 1908 (No. **2504**); Sung-pan, alt. 2600–3000 m., 1910 (No. 4055); no locality, 1910 (No. 4073).

Pinus Wilsonii Shaw, n. sp.

Arbor excelsa foliis geminis rigidis 7–10 cm. longis, canalibus resiniferis numerosis in textura virente externis, strobilis solitariis v. 2–3 verticillatis, junioribus subterminalibus mucronatis, adultis 4–6 cm. longis ovato-conicis obtusis subconformatis pedunculatis patulis v. reflexis persistentibus in aetate matura dehiscentibus, squamarum apophysi subelevato-pyramidata nitido-fusca, umbone prominente saepe mucronato.

Western Szech'uan: Wa-ssu country, alt. 1600–2300 m., May and July 1908 (No. **1475**); Wa-shan, alt. 2000 m., September 1908 (No. **1477**); Mao-chou, alt. 1900 m., May 1908, type specimen (No. **1493**); Niu-tow-shan, west of Kuan Hsien, alt. 2300 m., June 1908 (No. **2500**); Min Valley, 1910 (No. 4056).

In many particulars this Pine resembles the previous species and ultimately may be united with it; the principal difference lies in its subsymmetrical cone and its possibly invariable number of fascicle leaves. The species is established on the representation of Mr. Wilson, who considers it entirely distinct from all the other Pines that he has seen in China.

SAXIFRAGACEAE.

PHILADELPHUS L.

Determined by E. KOEHNE.

Philadelphus subcanus Koehne in *Mitt. Deutsch. Dendr. Ges.* XIII. 83 (1904). — Schneider, *Ill. Handb. Laubholzk.* I. 369 (1905).

Western Szech'uan: Mupin, thickets, alt. 1500–2100 m., June 1908 (No. **3039**); Wa-shan, thickets, alt. 2100–2400 m., June 1908 (No. **3040**); southeast of Tachien-lu, thickets, alt. 1800–2300 m., June 1908 (No. **3042**); Wa-ssu country, Wên-chuan Hsien, alt. 1800–2300 m., July 1908 (No. **3043**).

I formerly found the style pilose, but now I find it glabrous in some flowers of Wilson's specimens.

Philadelphus subcanus, var. **dubius** Koehne, n. var.

Ramuli floriferi etiam infra racemum laxe pilosi (in typo ibidem glabri). Folia subtus etiam inter nervos dense pilosa, interdum etiam supra pilosa. Stylus saepe glaber.

Western Szech'uan: Pan-lan-shan, west of Kuan Hsien, alt. 1500–2300 m., June 1908 (No. **3044**); Min valley, Kuan Hsien, alt. 900 m., June 2, 1908 (No. **3045**).

By its leaves being pilose also on the upper surface this variety seems to approach *P. Magdalenae* Koehne, but in that species the ovaries and sepals are brownish violet outside which I have never observed in *P. subcanus*. No. 3045 and part of No. 3044 have the leaves on the upper surface and the style glabrous, while one part of No. 3044 has the leaves above and the style at the base pilose.

Philadelphus Wilsonii Koehne, n. sp.

Frutex 2 m. v. 3.3–6 m. altus; cortex ramorum biennium persistens albido-griseus; ramuli juveniles sub anthesi [innovationes desiderantur] fusci glabri; gemmae absconditae. Petioli 8–12 mm. longi crassiusculi, subtus laxe subaccumbenti-pilosi; lamina e basi rotundata v. contracta ovato-oblonga v. ovato-elliptica, 10–16 cm. longa, 4.8–7.6 cm. lata, infimis supremisque binis exceptis multoties minoribus, leviter longiuscule v. breviter acuminata, denticulata denticulis sat remotis ad mucronem reductis, supra pilis brevissimis remotissimis

conspersa, subtus in costa nervis venisque validioribus sat dense, inter venas laxius molliuscule pilosa, fructificationis tempore subglabra, membranacea, nervorum paribus 2 rarius 3. Racemi 13–14 cm. longi, laxi, 9–11-flori, axi glabro v. pilis remotissimis paucissimis consperso; florum paria 1–2 infima foliis magnis, sequens foliis parvis, cetera bracteis hypsophylloideis fugacibus suffulta; pedicelli inferiores 10–15 mm. longi, ceteri subdecrescentes, pilis erecto-patentibus subcinerei; ovarium 5 mm. longum, ut sepala ad 7 mm. longa fuscescens pilis mollibus teneris accumbentibus breviusculis subcinerea; sepala intus basi excepta albo-tomentosa; corolla alba, circiter 3.3 cm. lata, petala ovali-orbicularia; stamina circ. 28, dimidiam petalorum partem paullo superantia ad 9 mm. longa; stylus 9–11 mm. longus stamina aequans v. paullo superans, basi, ut discus sat planus, molliter pilosus (in fructibus vero pilos non vidi), usque ad stigmata indivisus; stigmata secus marginem exteriorem antheras longitudine aequantia. Capsula 9–12 mm. longa, apice convexo glabro sepalorum insertionem triente fere superans.

Western Szech'uan: Wa-ssu country, Wên-chuan Hsien, alt. 1500–2700 m., July 1908 (No. **3041**). Western Hupeh: Fang Hsien, alt. 2100 m., November 1907 (No. **581**).

Allied to *P. subcanus* from which it chiefly differs in the unusually large leaves of the flowering branchlets. No. 581, though differing from the type in the subglabrous leaves and the glabrous apex of the fruit, probably belongs to this species.

Philadelphus incanus Koehne in *Gartenfl.* XLV. 562 (excludenda planta Henry No. 8823 quae ad *P. subcanum* pertinet) (1896). — Schneider, *Ill. Handb. Laubholzk.* I. 370 (1905).

Western Hupeh: Hsing-shan Hsien, thickets, alt. 1200–1800 m., June and October 1907 (No. **574**), April 1907 (No. **3048**), May 1907 (No. **3054**), July 1907 (No. **3055**); north of Ichang, thickets, alt. 1200–2100 m., July and November 1907 (No. **583**); north and south of Ichang, thickets, alt. 1200–1800 m., June 1907 (No. **3049**); Fang Hsien, thickets, alt. 1500–2100 m., July 1907 (No. **3047**); Changyang Hsien, alt. 1200–1800 m., June 1907 (No. **3050**); Chang-lo Hsien, alt. 600–1200 m., June 1907 (No. **3051**), alt. 1200–1800 m., June 1907 (No. **3052**); Patung Hsien, thickets, alt. 1200 m., July 1907 (No. **3053**).

Besides in other characters it differs from *P. subcanus* in the longer and more rigid hairs which cover the ovary and the sepals.

Philadelphus brachybotrys Koehne, n. sp.

Philadelphus pekinensis, var. *brachybotrys* Koehne in *Mitt. Deutsch. Dendr. Ges.* XIII. 84 (1904). — Schneider, *Ill. Handb. Laubholzk.* I. 373 (1904).

This is not a variety of *P. pekinensis* Ruprecht (sect. *Coronarii*), but belongs to the section *Satsumani*, on account of the two years old branches having a close gray or brownish gray bark often divided by numerous horizontal cracks.

Philadelphus brachybotrys, var. **purpurascens** Koehne, n. var.

Frutex 1.4–6 m. altus. Petioli in ramulis florentibus 1–2 mm. longi, laxe pilosi v. glabri, in innovationibus ad 4 mm. longi, laxe pilosi; lamina in innovationum foliis 3.5–5 cm. longa, 1.3–2.2 cm. lata, utrinsecus dentes 3–8 ad 0.6 mm. longos gerens, ciliata, in ramulorum florentium foliis 0.8–3.2 cm. longa, 0.5–1.7 cm. lata, denticulis minutis paucis, supra ut in typo laxe pilosa, subtus vero nonnisi in nervis primariis pilis longiusculis rigidis accumbentibus obsita v. interdum glabra; nervorum paria plerumque 2. Ramuli florentes 3–8.5 cm. longi adjecto racemo 2–4.5 cm. longo 3–7-floro, axi glabro; pedicelli infimi 6–8 mm. longi, glabri, ut axis ovaria sepalaque saepe purpurascentes; corolla alba 1.8–2.7 cm. diam., petala ovali-rotundata, 10–14 mm. longa, 8–10 mm. lata; stamina 32, 33. Stylus vix ultra medium indivisus. Fructus 8 mm. longus, 6 mm. diam., tertia parte convexa sepalorum insertionem superans.

Western Szech'uan: Ta-p'ao-shan, northeast of Tachien-lu, thickets, alt. 2750–3200 m., July 3, 1908 (No. **3046**); west of Tachien-lu, thickets, alt. 3000 m., June and October 1908 (No. **1346**).

DEUTZIA Thunb.

Determined by ALFRED REHDER.

Deutzia scabra Thunberg, *Fl. Jap.* 185, t. 24 (1784). — Lindley in *Bot. Reg.* XX. t. 1713 (1835). — Hooker in *Bot. Mag.* LXVII. t. 3838 (1841). — Hemsley in *Jour. Linn. Soc.* XXXIII. 276 (1887). — Schneider, *Ill. Handb. Laubholzk.*, I. 379, fig. 242 l–q, 243 a–f (1905).

D. crenata Siebold & Zuccarini, *Fl. Jap.*, I. 19, t. 6 (1835). — Maximowicz in *Mém. Acad. Sci. St. Pétersb.* sér. 7, X. No. XVI. 22, t. 2, fig. 27–31 (1867).
Deutzia Fortunei, Carrière in *Rev. Hort.*, 1866, p. 338.

Kiangsi: Kuling, abundant, alt. 1200 m., July 29, 1907 (No. **1569**).
Kiangsu: *Stronach* (ex Hemsley).

The Kiangsi specimen has remarkably large capsules, about 7 mm. in diameter, and large leaves ovate-oblong to lanceolate and broadly cuneate at the base. Hemsley cites also specimens from Hupeh and Formosa; the first quotation probably refers to the following species, the second to *D. taiwanensis*.

Deutzia Schneideriana Rehder, n. sp.

Deutzia staminea Hemsley in *Jour. Linn. Soc.* XXIII. 277 (not R. Brown) (1888).
Deutzia crenata Hemsley, *l. c.* (in part as to the Hupeh specimens) (not Siebold & Zuccarini).

Frutex 1–2 m. altus ramulis fusco-purpureis, initio sparse stellato-pilosis, mox glabrescentibus, vetustioribus griseo-brunneis cortice detersili. Gemmae pluri-perulatae, stellato-pilosae. Folia subchartacea, elliptico-ovata, interdum ovata v. elliptico-oblonga, breviter acuminata, basi late cuneata v. interdum rotundata, argute serrulata, 3.5–7 cm. longa et 1.5–3 cm. lata, supra pilis 5–6-radiatis laxe conspersa, subtus canescentia v. albida, dense pilis 12–14-radiatis obtecta, ad venas pilis longis simplicibus instructa, utrinsecus 4–6-costata; petioli parce stellato-pilosi, 3–4 mm. longi. Inflorescentia late paniculata, 3–6 cm. longa; calyx hemisphericus, dense stellato-pilosus dentibus triangularibus tubum subaequantibus; petala oblonga, circa 10 mm. longa, extus stellato-pilosa; stamina longiora petalis quarta parte breviora v. interdum fere aequantia, filamentis dilatatis apice manifeste dentatis dentibus antheram vix attingentibus; styli plerumque 3, graciles, stamina subaequantes. Capsula hemispherica, apice leviter contracta, 5–7 mm. diam., calyce deciduo.

Western Hupeh: Chang-lo Hsien, thickets, alt. 900–1200 m., June 1907 (No. **2889**, type); without locality, June 1901 (Veitch Exped. No. 2152, 2152[a]); Ichang, *A. Henry* (No. 3571); without locality, *A. Henry* (No. 1968).

Most nearly related to *D. scabra* Thunberg, which is easily distinguished by the leaves being only sparingly stellate-pubescent and therefore green on the underside, without simple hairs on the veins, by their crenulate-serrate margin with appressed serratures and by the narrow, nearly cylindric panicles, while the related *D. hypoleuca* Maximowicz differs in its five styles and narrow panicles. I take pleasure in associating with this species the name of Mr. C. K. Schneider whose "Beitrag zur Kenntnis der Gattung Deutzia" (in *Mitt. Deutsch. Dendr. Ges.* XIII. 172–188 (1904) is a valuable contribution to the knowledge of this genus.

Deutzia Schneideriana, var. **laxiflora** Rehder, n. var.

A typo differt praecipue foliis subtus viridibus, sparsius stellato-pilosis, paniculis laxioribus latioribusque. Frutex 2–2.5 m. altus. Folia oblongo-lanceolata, acuminata, basi rotundata v. late cuneata, remote et irregulariter denticulata, 5–7 cm. longa et 1.5–2.3 cm. lata, supra pilis 4–5-radiatis sparsius, subtus pilis 10–12-radiatis densius conspersa. Panicula 6–9 cm. longa et 5–8 cm. lata, ramulis infimis floribus inclusis 4–5 cm. longis; petala 12–14 mm. longa, acutiuscula. Capsula 5 mm. diam. Ceterum ut in typo.

Western Hupeh: north and south of Ichang, alt. 900–1400 m., June and December 1907 (No. **767**).

Differs from the type chiefly in the leaves being on their under side only sparingly stellate-pubescent and therefore green, and in the looser and broader panicles.

Deutzia pilosa Rehder, n. sp.

Frutex metralis ramulis fuscis, junioribus pilis longis patentibus ferrugineis instructis, secundo anno tarde glabrescentibus. Folia brevissime petiolata, membranacea, ovata v. ovali-ovata v. oblongo-ovata, longe acuminata acumine saepe falcato, basi rotundata v. subcordata, argute mucronulato-serrulata, 3–6.5 cm. longa et 1.5–3 cm. lata, concoloria, supra pilis stellatis 3–4-radiatis et insuper radio centrali longiore instructis, subtus pilis 4–6-radiatis radio centrali instructis conspersa et ad venas pilis simplicibus patentibus praedita; petioli dense pilosi, 1–2 mm. longi. Cyma 3–9-flora, rarius uniflora, bracteis lineari-lanceolatis v. ebracteata, pilis ferrugineis patentibus instructa, pedunculo gracili, 1.5–3.5 cm. longo; flores graciliter pedicellati; dentes calycis late ovati subito breviter acuminata, tubo dense pube homomorpha v. interdum heteromorpha obtecto dimidio breviores; petala oblongo-ovata, circa 8 mm. longa, extus dense stelato-pilosa; stamina petalis fere dimidio breviora, filamentis exteriorum manifeste dentatis dentibus lanceolatis falcatis antheram fere sessilem multo superantibus, interiorum lanceolatis antheram faciei interiori circa medium affixam gerentibus; styli 3–4, staminibus multo breviora, 1.5 mm. longa. Capsula subglobosa, circa 5 mm. diam., calycis dentibus persistentibus incurvis.

Western Szech'uan: west of Kuan Hsien, thickets, alt. 1200–1500 m., June 19, 1903 (No. **2896**, type); Mt. Omei, May 1904 (Veitch Exped. No. 4884).

In its spreading pilose ferrugineous pubescence and its long peduncled few-flowered inflorescence this is very unlike any other species. No. 4884 differs from the type somewhat in the heteromorphous pubescence of the calyx and in the less marked development of the central ray of the hairs on the upper side of the leaves.

Deutzia setchuenensis Franch., var. **longidentata** Rehder, n. var.

Folia ovata v. oblongo-ovata, rarius oblongo-lanceolata, 4–8 cm. longa, concoloria, supra pilis plerumque 4-radiatis, subtus plerumque 6-radiatis, 5–7-radiatis rarius 8-radiatis interspersis, radio centrali destitutis conspersa. Cyma pauciflora, longe pedunculata, pedicellis gracilibus; filamenta staminum exteriorum dentibus lanceolatis antheram multo superantibus, interiorum lanceolata antheram faciei interiori infra medium affixam gerentia; ceterum ut in typo.

Western Szech'uan: Chin-ting-shan, thickets, alt. 1200–1500 m., May 25, 1908 (No. **2895**).

Differs from the type chiefly in its elongated filaments much exceeding the anthers as well in the interior as in the exterior stamens, in the smaller cymes and in the green only sparingly stellate-pubescent under side of the leaves. This may be a distinct species, if the characters should prove to be constant, but as the material at hand is meagre and does not seem of quite normal development, it may be referred provisionally to *D. setchuenensis* as a variety.

Deutzia setchuenensis var. **corymbiflora** Rehder, n. var.

Deutzia corymbiflora Lemoine in *Gard. Chron.*, ser. 3, XXIII. 121; XXIV. 265, fig. 76 (1898); in *Rev. Hort.*, 1898, 401, fig. 138; in *Rev. Hort. Belg.* XXV. 67 (1898). — Schneider in *Mitt. Deutsch. Dendr. Ges.* XIII. 180 (1904).
Deutzia setchuenensis Hutchinson in *Bot. Mag.* CXXXV. t. 8255 (1909).
Deutzia corymbiflora erecta Lemoine in *Jour. Soc. Hort. France*, sér. 4, III. 308 (1902).

Western Hupeh: Fang Hsien, thickets, alt. 900–1500 m., June 1910 (No. **4486**). — Originally introduced into cultivation from eastern Szech'uan.

Differs from the type chiefly in the denser more or less heteromorphous pubescence of the leaves and the many-flowered inflorescence with the pedicels as long or shorter than the calyx. *Deutzia corymbiflora erecta* Lemoine differs slightly in its more ascending branchlets, smaller inflorescence and narrower leaves with sometimes nearly homomorphous pubescence. The Deutzia figured by Burvenich (in *Rev. Hort. Belg.* XXVII. 157, t.) as *D. corymbiflora* does not belong here, but is apparently *D. purpurascens* (Franchet) Rehder or one of its hybrids.

Deutzia coriacea Rehder, n. sp.

Frutex metralis ramulis annotinis cinereo-fuscis peridermate tarde decorticante, hornotinis fusco-flavidis glabris. Gemmae parvae perulis 4 exterioribus stellato-pilosis. Folia coriacea partim per secundum annum persistentia, ovata, acuminata, basi rotundata v. late cuneata, spinoso-dentata, 3–5.5 cm. longa et 2–3 cm. lata, supra glaberrima, nitida, flavido-viridia, subtus pallide viridia, pilis minutis, 5–7-radiatis conspersa, utrinsecus 4–6-costata; petioli purpurascentes, glabri, 5–7 mm. longi. Cymae e gemmis lateralibus et terminalibus aphyllis orientes, pedunculo 2–5 mm. longo, rarius longiori insidentes, 5–9-florae; flores desiderantur. Capsulae breviter pedicellatae, ovoideo-hemisphericae leviter costatae, circa 4 mm. longae, pube homomorpha stellato vestitae; calycis dentes capsula dimidio breviores, late triangulares, erecti v. leviter incurvi; styli 3, circa 2 mm. longi, persistentes.

Eastern Szech'uan: Taning Hsien, limestone cliffs, alt. 600 m., June 26, 1910 (No. **4481**).

Deutzia coriacea is a very striking species with its coriaceous lustrous almost spiny foliage; it is most nearly related to *D. Fargesii* Franchet, which is easily dis-

tinguished by its long-peduncled lax inflorescence and by the narrower, thinner, denticulate, scarcely lustrous leaves.

Deutzia Fargesii Franchet in *Jour. de Bot.* X. 281 (1890).

Western Hupeh: Fang Hsien, thickets, alt. 900–1200 m., June 1910 (No. **4488**). Eastern Szech'uan: Ky-min-se, near Chang-k'on, *R. P. Farges* (No. 1043).

Franchet describes the leaves "utraque facie glabra" but they are on the under side rather densely covered with closely appressed, minute, 6–7-radiate hairs, hardly visible to the naked eye.

Deutzia glomeruliflora Franchet in *Nouv. Arch. Mus. Paris*, sér. 2, VIII. 236 (*Pl. David.* II. 54) (1885).

Western Szech'uan: Mupin, April 1869, *A. David* (ex Franchet); Mupin, thickets, alt. 1800–2100 m., June and October 1908 (No. **1188**); Tachien-lu, thickets, alt. 1800–2500 m., June 1908 (No. **2891**), alt. 1300–2700 m., June 1908 (No. **2901**); valley of Hsao-chin Ho, near Monkong Ting, alt. 2100–2400 m., June 1908 (No. **2899**); Cheto-shan, southwest of Tachien-lu, alt. 3500 m., October 1910 (No. **4383**); no locality, May 1904 (Veitch Exped. No. 3568). Yunnan: woods near Fang-yang-chang, alt. 3000 m., June 7, 1888, *J. M. Delavay*.

Wilson's specimens show a wide range of variation. His No. 2891, with its small and dense inflorescences on short branchlets bearing only a few small leaves and sometimes nearly leafless, seems nearest to the type. All his specimens, however, have the flowers larger than those described by Franchet, particularly No. 2901, which has the petals 14 mm. long and 10 mm. broad. Sometimes, as in No. 2899, the flowers are borne on elongated branchlets with three pairs of well developed leaves. This tends to show that the type specimen does not present the normal development of the species, but a somewhat abnormal precocious state, as may be inferred from the fact that the type specimen was collected in April, while Wilson's flowering specimens were all gathered in June. No. 1188 has the pubescence of the calyx heteromorphous, as described by Franchet, while in the other specimens the pubescence is homomorphous except in Delavay's specimen from Yunnan, which differs besides in its broader leaves.

Deutzia glomeruliflora × longifolia Rehder, n. hybr.

Frutex 2 m. altus ramulis rubro-fuscis, junioribus stellato-pilosis, annotinis peridermate solubili. Folia ovato-oblonga v. ovato-lanceolata, acuminata, basi rotundata v. late cuneata, argute serrata, 2.5–5 cm. longa et 1–1.5 cm. lata, supra laete viridia pilis 4–5-radiatis conspersa, subtus pallidiora v. canescentia pilis 5–8-radiatis partim radio centrali instructis et ad venas etiam simplicibus et fasciculatis interspersis obtecta; petioli stellato-pilosi, circa 2 m. longi. Cyma convexa, in apice ramulorum brevium; pedicelli plerumque tubum calycis aequantibus; calycis dentes lanceolati tubum pube hetero-

morpha praeditum superantes; petala 10–14 mm. longa, extus plerumque purpurascentia; stamina dimidiis petalis vix longiora, exteriora filamentorum dentibus antheram fere aequantibus v. superantibus, interiora filamentis lanceolatis antheram longe superantibus; styli stamina subaequantes.

Western Szech'uan: Tachien-lu, alt. 1200–1800 m., May 1908 (No. 2893); Wa-ssu country, Wên-chuan Hsien, alt. 1200–1800 m., July 1908 (No. 2890); Nin-tou-shan, west of Kuan Hsien, alt. 1200–1800 m., June 20, 1908 (No. 2900).

Wilson's No. 2993, from which the description given above is drawn, is in its characters clearly intermediate between *D. glomeruliflora* Franchet and *D. longifolia* Franchet, and I have no doubt that it is a hybrid between these two species, both of which have been collected in the neighborhood of Tachien-lu. The other two numbers seem closer to *D. longifolia* and may possibly represent a white-flowered variety of that species, though they differ in the pubescence. The intermediate character of the hybrid is most clearly shown in the hairs of the under side of the leaves, which have 4–6 rays in *D. glomeruliflora* and 12–14 in *D. longifolia*, while in No. 2993 they have 5–8 rays and in the other two numbers 8–10 rays. The flowers are white in the first species, purplish outside in the second species, and slightly purplish in No. 2993, while in the two other numbers they are white as in *D. glomeruliflora*. In habit the hybrid resembles most the last named species.

The species of *Deutzia* are known to hybridize easily in cultivation, and they seem to do the same in a wild state if they have the opportunity, for besides the hybrid described here, another hybrid, between *D. discolor* and *D. mollis*, described below, has been collected in a wild state.

Deutzia subsessilis Rehder, n. sp.

Frutex 1.5 m. altus ramulis gracilibus, junioribus parcissime stellato-pilosis, annotinis cortice detersili fusco praeditis. Gemmae perulis ovatis acutis stellato-pilosis. Folia membranacea, oblongo-ovata, acuminata acumine obtuso mucronulato, basi rotundata, argute serrulata, 3–6 cm. longa et 1.5–2.5 cm. lata, supra obscure viridia v. flavo-viridia, pilis sparsis plerumque 4-radiatis conspersa, subtus pallidiora, pilis 4–5-radiatis laxe conspersa et sub lente minute punctulata, utrinsecus 4–5-costata; petioli in ramulis floriferis subnullis, in innovationibus circa 1 mm. longi, parce stellato-pilosi. Cyma pluriflora, convexa, plerumque sessilis, parce stellato-pilosa; pedicelli graciles; calyx stellato-tomentosus, dentibus triangularibus tubo aequilongis v. paullo longioribus trinerviis; petala oblonga, 10 mm. longa et 6–7 mm. lata, alba, extus stellato-pilosa; stamina petala dimidia aequantia, filamenta exteriorum apice manifeste bidentata dentibus triangularibus antheram breviter stipitatam subaequantibus, interiorum anguste oblonga, antheram faciei interiori circa medium affixam gerentia; styli 3, stamina subaequantes. Capsulae maturae desunt.

Western Szech'uan: Mupin, alt. 1800 m., June 1908 (No. 1188[a]).

From all the allied species this is easily distinguished by the nearly sessile leaves of the flowering branches; the other species with nearly sessile leaves, *D. pilosa* Rehder, *D. Faberi* Rehder, and *D. Sieboldiana* Maximowicz, are too different to be confounded with *D. subsessilis*.

Deutzia discolor Hemsley in *Jour. Linn. Soc.* XXIII. 275 (1887).

Hupeh: Patung distr., *A. Henry* (Nos. 5426, 5718); Hsing-shan Hsien, thickets, alt. 1200–1500 m., June and November 1807 (No. 570, 2886, 2887, 2888); without locality (Veitch Exped. Nos. 190, 710, 1916[b], 2335, 2335[a]). Southern Shensi: Mt. Tun-u-sse, June 16–18, 1894, *G. Giraldi* (No. 771).

Deutzia discolor shows considerable variation in the size of the flowers, density and size of the inflorescence and in the shape of the filaments. A very large-flowered form has been distinguished as *D. discolor* var. *major* Veitch, *Cat.* 1905, fig. ex *Kew Bull. Misc. Inform.*, 1906, appx. I. 67; *Novelties for* 1907, 14. The No. 2887 has the flowers white and pink, but does not differ otherwise from *D. discolor*.

Deutzia densiflora, Rehder, n. sp.

Frutex bimetralis ramulis robustis, junioribus floriferis glabris v. fere glabris, foliiferis parce stellato-pilosis, annotinis rubro-fuscis cortice detersili. Gemmae perulis late ovatis abrupte acuminulatis stellato-pilosis. Folia membranacea, ovato-oblonga v. oblonga, acuta v. breviter acuminata, basi rotundata v. interdum late cuneata, argute serrulata, 4–7 cm. longa et 1.5–2.8 cm. lata, supra obscure viridia, pilis 4–5-radiatis sparse conspersa, subtus canescentia, dense pilis 9–12-radiatis obtecta, utrinsecus 5–6-costata; petioli stellato-pilosi, 2–4 mm. longi. Cyma densa, late pyramidalis, ad 7 cm. longa et 6 cm. diam., fere glabra, in apice ramulorum perbrevium plerumque paribus foliorum duobus in axillis cymas partiales gerentibus instructorum; pedicelli stellato-pilosi, tubum calycis stellato-pilosi subaequantes, dentes calycis ovati, abrupte acuminulati, tubo paullo breviores; petala elliptico-oblonga, alba, extus sparse stellato-pilosa, 8–9 mm. longa; stamina petalis tertia parte breviora, filamenta exteriorum apice manifeste dentata, dentibus triangularibus stipitem antherae plerumque subaequantibus v. paullo superantibus, interiorum anguste oblonga, apice obtusa v. obsolete denticulata, antheram circa medium affixam gerentia; styli 3, staminibus longioribus paullo breviores. Capsulae maturae desiderantur.

Western Hupeh: Hsing-shan Hsien, side of streams, alt. 1200–1500 m., May 19, 1907 (No. 2885).

Allied to *Deutzia discolor* Hemsley, which is easily distinguished by its looser cymes, lanceolate calyx-teeth and by the interior filaments not exceeding the anthers and usually bidentate.

Deutzia longifolia Franchet in *Nouv. Arch. Mus. Paris*, sér. 2, VIII. 235 (*Pl. David.* II. 53) (1885).

Szech'uan: Mupin, *David* (ex Franchet); Mupin, thickets, alt. 1500–2300 m., June and October 1908 (No. **1186**); southeast of Tachien-lu, thickets, alt. 1800–2700 m., June and October 1908 (No. **1321**, **1322**, **2892**); Wa-shan, thickets, common, alt. 1500–1800 m., June and November 1908 (No. **1340**); Pan-lan-shan, west of Kuan Hsien, thickets, alt. 2400–2700 m., October 1910 (Nos. **4298**, **4326**); Sungpan, thickets, alt. 2700 m., October 1910 (No. **4300**); without locality, July 1903 (Veitch Exped. No. 3567, 3567[a]); Tachien-lu, *A. E. Pratt* (No. 677).

Though Wilson's specimens differ from the description of *D. longifolia* Franchet, of which I have not seen the type, in the broader leaves and larger flowers, I have no doubt that they must be referred to this species. The leaves of Wilson's specimens are sometimes ovate-oblong and 3 cm. broad and the petals attain 14 mm. in length. From the allied species *D. longifolia* is readily distinguished by the narrower, rather thickish leaves, rugose above and with strongly elevated veins on the whitish under side, by the heteromorphous pubescence of the under side, the purplish flowers in many-flowered paniculiform cymes usually loose and borne on elongated branchlets, but sometimes rather dense and on short branchlets, by the usually four styles and larger capsules measuring about 6 mm. in diameter.

Deutzia mollis Duthie in *Gard. Chron.* ser. 3, XL. 238 (1906).

Hupeh: without locality (Veitch Exped. Nos. 1959, 2282, type); Hsing-shan Hsien, thickets, alt. 1500–1800 m., June 1907 (No. **2894**).

A natural hybrid of this species with *D. discolor* is described below.

Deutzia rubens Rehder, n. sp.

Frutex metralis ramulis gracilibus rubro-fuscis, junioribus sparsissime stellato-pilosis, mox glabrescentibus, annotinis cortice detersili. Gemmae perulis numerosis lanceolatis, acuminatis, exterioribus glabris, obscure castaneis. Folia membranacea, oblonga v. ovato-oblonga, acuminata, basi plerumque attenuata, rarius rotundata, argute minuteque serrulata serraturis plerumque purpureis, 4–7 cm. longa et 1.5–3 cm. lata, subconcoloria, utrinque sparse stellato-pilosa, supra plerumque pilis 4-radiatis, subtus 5–6-radiatis insuperque minute punctulata, utrinsecus 5–6-costata; petioli sparse stellato-pilosi, 2–4 mm. longi. Cyma pluriflora v. multiflora, convexa, parce stellato-pilosa, plerumque breviter pedunculata; pedicelli graciles, ad 2.5 cm. longi; calycis stellato-pilosi dentes ovati, subito acuminulati,

tubum subaequilongi v. paullo tantum breviores; petala obovata, 10 mm. v. interdum 5 mm. longa, 7–8 mm. lata, alba, extus rubescentia et sparse stellato-pilosa; stamina petalis tertia parte breviora, filamenta exteriorum apice obtusa v. obsolete 2–3-dentata, antheram breviter stipitatam paullo infra apicem affixam gerentia, interiorum antheram circa medium affixam gerentia; styli tres, stamina subaequantes. Capsula hemispherica, 4–5 mm. diam. lobis diu persistentibus reflexis, demum deciduis.

Western Szech'uan: Pan-lan-shan, west of Kuan Hsien, cliffs, alt. 2100–2700 m., June 1908 (No. **2902**, type); Nin-tou-shan, west of Kuan Hsien, thickets, alt. 1500–2100 m. (No. **2898**); Chin Ting-shan, thickets, alt. 1800 m., May 23, 1908 (No. **2897**); Wa-shan, alt. 3000 m., July 1903 (Veitch Exped. No. 3566). Hupeh; without locality (Veitch Exped. No. 1919).

Related to *D. corymbosa* R. Brown and *D. parviflora* Bunge, from both of which it is easily distinguished by the hairs on the under side of the leaves having only 5–6 rays, by the filaments extending undivided above the insertion of the anthers, and by the color of the flowers. The flowers vary greatly in size; in the type the petals are 10 mm. long, while in No. 2897 they are scarcely 5 mm. long and slightly longer in No. 3566; in No. 1919 they are 7 mm. long. No. 3586 differs besides in its smaller leaves nearly glabrous beneath.

SYNOPSIS OF THE CHINESE DEUTZIAS.

While determining the Deutzias of the Wilson collection I have found a large amount of undetermined material which led me to a closer study of all the Chinese species. The results of this study are embodied in the following key and enumeration of the Chinese species.

KEY TO THE SPECIES.

Praefloratio induplicato-valvata . . . . . .Sect. I. **EUDEUTZIA.**

* Inflorescentia manifeste paniculata, sessilis; calycis dentes tubo breviores; filamenta dentata v. edentata, antheram non superantia.

Subsect. 1. SCABRAE.

Folia pube dimorpha instructa, pilis subtus 10–15-radiatis.

Folia dense serrulata.

Panicula angusta; folia crenato-serrulata, subtus sparse stellato-pilosa, viridia, pilis simplicibus destituta . . . . . .1. *D. scabra.*

Panicula late pyramidalis; folia argute serrulata, subtus dense stellato-pilosa, canescentia (in varietate viridia), pilis simplicibus ad venas instructa . . . . . 2. *D. Schneideriana.*

Folia remote denticulata.

Styli plerumque 3; petioli 1–3 mm. longi; folia utrinsecus 5–6-costata. 3. *D. ningpoënsis.*

Styli plerumque 5; petioli 5–10 mm. longi; folia utrinsecus 8–12-costata. 4. *D. pulchra.*

Folia pube homomorpha instructa, pilis subtus 4–7-radiatis.
Filamenta edentata, petalis aequilonga; folia superiora ramulorum floriferorum subsessilia . . . . . 5. *D. Faberi.*
Filamenta dentata, petalis breviora; folia omnia petiolata. 6. *D. taiwanensis.*

** Inflorescentia corymbiformis v. cymosa; filamenta staminum saltem interiorum antheram saepe superantia.
† Inflorescentia multiflora v. pluriflora, rarius pauciflora.
‡ Dentes calycis triangulares v. late ovati, dimidium tubum vix superantes; inflorescentia cymosa, laxa, plerumque pedunculata et saepe pauciflora; filamenta staminum interiorum antheram superantia, apice indivisa v. irregulariter dentata.

Subsect. 2. CYMOSAE.

Pubes stellata pilis patentibus simplicibus ferrugineis interspersa; folia brevissime petiolata; cyma pauciflora, longe pedunculata. 7. *D. pilosa.*
Pubes omnino stellata, heteromorpha v. homomorpha, pilis ferrugineis destituta.
Folia membranacea, denticulato-serrulata, utrinque stellato-pilosa pube saepe heteromorpha.
Flores albi; calycis dentes tubum dimidum vix aequantes; folia subtus cinereo-viridia . . . . . 8. *D. setchuenensis.*
Flores rosei; calycis dentes tubum dimidium superantes; cyma multiflora ramis pedicellisque purpurascentibus; folia subtus albido-glaucescentia . . . . . 9. *D. Silvestrii.*
Folia coriacea v. chartacea, supra glabra v. fere glabra, persistentia, subtus pilis stellatis minutis homomorphis vestita.
Cymae densae, breviter pedunculatae; folia coriacea nitida, spinoso-dentata, ovata . . . . . 10. *D. coriacea.*
Cymae laxae, longe pedunculatae; folia chartacea, denticulato-serrata, oblongo-lanceolata . . . . . 11. *D. Fargesii.*

‡‡ Dentes calycis lanceolati v. oblongo-ovati tubum aequantes v. superantes, rarius paullo breviores; inflorescentia late pyramidalis, sessilis, plerumque satis densa, multiflora, rarius pauciflora (in No. 14).

Subsect. 3. STENOSEPALAE.

Pubes homomorpha v. fere homomorpha, pili paginae inferioris foliorum 4–6-radiati, interdum 7-radiatis interspersis.
Folia pube heteromorpha vestita, subtus molliter pubescentia; filamenta staminum interiorum lanceolata; flores albi. 12. *D. glomeruliflora.*
Folia pube homomorpha vestita subtus pilis stellatis adpressis conspersa; filamenta staminum interiorum anguste oblonga, apice truncata et irregulariter denticulata.
Folia subsessilia, basi rotundata, subtus pilis 4–5-radiatis praedita; flores albi . . . . . 13. *D. subsessilis.*
Folia petiolata, basi plerumque late cuneata, subtus pilis 5–7-radiatis praedita; flores extus purpurascentes; cyma interdum pauciflora. . . . . 14. *D. purpurascens.*

Pubes manifeste dimorpha, pili paginae inferioris cinerascentis v. albidae foliorum 8–12-radiati.
Filamenta staminum interiorum apice bidentata dentibus antheram non superantibus v. infra apicem subito contracta.

Filamenta fere edentata apicem versus attenuata v. infra apicem abrupte contracta et tantum angulata angulis haud productis.
Calycis dentes tubo paullo breviores, ovato-oblongi, obtusiusculi; cyma laxa pedicellis gracilibus, 6–10 mm. longis.
15. *D. Wilsonii.*
Calycis dentes tubum aequantes v. paullo superantes; cyma densa, pedicellis circa 5 mm. longis. 16. *D. globosa.*
Filamenta apice dentata; calycis dentes lanceolati.
Pedicelli circa 10 mm. longi; cyma laxa; petala patentia; dentes filamentorum stipite antherae multo breviores.
17. *D. Vilmorinae.*
Pedicelli circa 5 mm. longi; cyma satis densa.
Dentes filamentorum breves, antheram vix attingentes; petala margine reflexa. . . . . 18. *D. reflexa.*
Dentes filamentorum elongati, antherae basin superantes, rarius paullo breviores; petala plana. 19. *D. discolor.*
Filamenta staminum interiorum lineari-oblonga, apice obtusa v. obsolete dentata, antheram longe superantia, rarissime quam anthera paullo breviora.
Dentes calycis tubo paullo breviores, ovati, apice abrupte acuminulati; corymbus densus, pedicellis 2–3 mm. longis calyce brevioribus. . . . . 20. *D. densiflora.*
Dentes calycis tubum aequantes v. superantes, lanceolati.
Folia ovata v. oblonga, basi rotundata, integra v. minute denticulata; pedicelli calyce breviores; petala alba; styli staminibus fere duplo breviores; filamenta omnia antheras superantia . . . . . 21. *D. albida.*
Folia oblonga v. lanceolata, basi attenuata, argute serrulata; pedicelli plerumque calyce longiores; petala rosea; styli staminibus aequilongi; antherae filamenta superantes.
22. *D. longifolia.*

†† Inflorescentia 1–3-flora, breviter pedunculatae (vide etiam No. 14).
‡ Flores in apice ramulorum foliosorum; ovarium semisuperum; dentes calycis lanceolatae; filamenta dentibus recurvatis.
Subsect. 4. GRANDIFLORAE.
Dentes calycis in apice marginis calycini erecti brevissimi inserti.
Folia subtus stellato-tomentosa pilis multiradiatis, basi rotundatis v. subcordatis . . . . . 23. *D. grandiflora.*
Folia subtus glabra pilis simplicibus ad venas exceptis v. interdum pilis rarissimis 5-radiatis instructa, basi late cuneata.
24. *D. prunifolia.*
Dentes calycis ad marginem annuli calycini horizontalis patellati exteriorem inserti; folia subtus glabra pilis stellatis versus nervorum basin exceptis . . . . . 25. *D. hamata.*
‡‡ Flores e gemmis aphyllis orientes, plerumque solitarii; folia oblonga v. lanceolata, subtus viridia, pilis 5–6-radiatis conspersa; ovarium totum inferum; dentes calycis triangulares, breves. Subsect. 5. COREANAE.
26. *D. coreana.*

Praefloratio imbricata . . . . . Sect. II. **MESODEUTZIA.**
* Folia subtus molliter pubescentia, pilis plerumque 4–radiatis radio centrali instructis et ad venas simplicibus obtecta; filamenta e basi dilatata sensim angustata . . . . . 27. *D. mollis.*

** Folia subtus pilis multiradiatis adpressis conspersa v. glabra.
† Filamenta edentata v. breviter dentata dentibus antheram non superantibus.
Calyx stellato-pilosus; folia subtus sparse pilis 6–12-radiatis instructa.
Petala circa 6 mm. longa; filamenta breviter dentata, rarius edentata; corymbus ramulis 1–2 cm. longis.
Folia crenato-serrulata serraturis incurvis, basi rotundata, subtus pilis 8–12-radiatis conspersa; filamenta omnia dentata.
28. *D. corymbosa.*
Folia argute serrulata serraturis porrectis, basi plerumque late cuneata, subtus pilis 6–9-radiatis conspersa; filamenta saepe saltem exteriora edentata . . . . . 29. *D. parviflora.*
Petala circa 3.5 cm. longa; filamenta subulata; corymbus multiflorus ramulis inferioribus ad 3 cm. longis . . . . . 30. *D. micrantha.*
Calyx et corymbus omnino glabra; folia subtus glabra v. sparsissime pilis 3-radiatis conspersa; filamenta subulata. 31. *D. glabrata.*
†† Filamenta staminum exteriorum manifeste dentata dentibus antheram superantibus, interiorum lineari-oblonga antheram longe superantia.
Folia subtus stellato-pilosa, viridia, pilis 5–6-radiatis conspersa; petala extus rubescentes, calycis dentes plerumque purpurei, acuminulata.
32. *D. rubens.*
Folia subtus glaberrima, glauca; petala alba; calycis dentes pallidi, obtusi.
33. *D. hypoglauca.*

ENUMERATION OF THE SPECIES.

Sect. I. **EUDEUTZIA** Engler, *Nat. Pflanzenfam.* III. 29, p. 72 (in part) (1900). — Schneider in *Mitt. Deutsch. Dendr. Ges.* XIII. 176 (1904).

Subsect. 1. SCABRAE Rehder, n. subsect.
Latisepalae Schneider in *Mitt. Deutsch. Dendr. Ges.* XIII. 176 (in part) (1904).

Inflorescence a sessile panicle with an elongated main axis and short, few- or several-flowered lateral branchlets; calyx-teeth ovate or triangular, much shorter than the tube; petals usually more or less upright; filaments not exceeding the anthers, without teeth or with short teeth not reaching the base of the anthers, two-thirds or nearly as long as the petals; styles slender, as long or not more than one-third shorter than the petals. Here belong, besides the species enumerated below, *D. hypoleuca* Maximowicz, *D. Sieboldiana* Maximowicz and *D. gracilis* Siebold & Zuccarini.

1. **Deutzia scabra** Thunberg. See p. 6.
2. **Deutzia Schneideriana** Rehder. See p. 7.
3. **Deutzia ningpoensis** Rehder, n. sp.

Frutex ramulis gracilibus, junioribus rufobrunneis, sparse stellato-pilosis, vetustioribus pallide griseo-brunneis. Gemmae perulis acutis sparse stellato-pilosae. Folia subchartacea, ovato-oblonga, acuminata, basi rotundata v. late cuneata, remote et obsolete denticulata v. fere integra, 3.5–7 cm. longa et 1.5–3 cm. lata, supra obscure viridia, pilis 4–6-radiatis conspersa, subtus albido-tomentosa, dense pilis 12–14-radiatis obtecta, utrinsecus 5–6-costata; petioli stellato-pilosi, 1–2 mm. longi. Panicula 5–12 cm. longa et 2.5–6 cm. lata, laxe stellato-pilosa, pedicellis 1–3 mm. longis; flores desunt. Capsula subglobosa, 3–4.5 mm. diam., dense stellato-pilosa, calycis dentibus dimidium tubum vix superantibus plerumque deciduis; stylis 3, gracilibus, circa 8 mm. longis.

Chekiang: Ningpo Mts., *E. Faber* ((Herb. Arnold Arboretum).

Allied to *D. hypoleuca* Maximowicz which differs chiefly in its densely serrulate thinner leaves, the slenderer petioles, 2–5 mm. long and the 4–5 styles.

4. **Deutzia pulchra** Vidal, *Revis. Pl. Vasc. Filip.* 124 (1886).

Formosa: Bankinsing, *A. Henry* (Nos. 38, 477).

The occurrence of this Philippine species in Formosa is phytogeographically interesting. Henry's specimens agree exactly with Elmer's No. 8414 from the province of Benguet, except that in the latter the stellate hairs on the upper surface of the leaves have usually 4–6 rays interspersed with comparatively few hairs with 10–12 rays, while in the Formosa plant most of the hairs have 6–8 rays and many 10–14 rays. The inflorescence is not corymbiform as might be inferred from Vidal's description, but a panicle 6–11 cm. long and 5–8 cm. broad.

5. **Deutzia Faberi** Rehder, n. sp.

Frutex ramulis gracilibus fuscis, junioribus stellato-pilosis, annotinis peridermate detersili. Gemmae multi-perulatae, stellato-tomentosae. Folia membranacea, oblonga v. anguste ovato-oblonga, acuminata, in ramulis floriferis subsessilia, basi rotundata, in sterilibus breviter petiolata, basi cuneata, dense minuteque serrulata serraturis adpressis, 4–8 cm. longa et 1.5–2.5 cm. lata, laete viridia, concoloria, supra pilis 3–4-radiatis sat dense conspersis, subtus pilis plerumque 4-radiatis insuperque saepissime radio centrali elongato instructis pubem subvillosam formantibus praedita, utrinsecus 7–9-costata; petioli stellato-pilosi, 1–2 mm. longi, in ramulis floriferis subnulli. Panicula sessilis, multiflora, laxa, 7–10 cm. longa, laxe stellato-pilosa; pedicelli graciles, pube heteromorpha vestita; calycis dentes minuti vix quartam partem tubi dense pube heteromopha vestiti turbinati longioris quam lati aequantes; petala oblonga, erecta, 10 mm. longa et 4 mm. lata, extus dense stellato-pilosa; stamina exteriora petalis aequilonga filamentis basi dilatatis apicem versus sensim angustatis v. paullo supra medium subito contractum angulatum, interiora filamentis paullo supra medium breviter dentatis; styli 3, graciles, stamina aequantes. Capsulae maturae desunt.

Chekiang: Tientai, Kiangsu Hills, *E. Faber* (No. 210, in Herb. Arnold Arboretum.).

Closely related to *D. Sieboldiana* Maximowicz, which is easily distinguished by its generally ovate leaves, more coarsely serrulate with spreading teeth, by the calyx-teeth being about half as long as the tube which is broader than long, and by its smaller flowers with more spreading petals.

6. **Deutzia taiwanensis** Schneider in *Mitt. Deutsch. Dendr. Ges.* XIII. 177 (1904).

D. crenata, var. ? δ *taiwanensis* Maximowicz in *Mém. Acad. Sci. St. Pétersb.* sér. 7, X. No. XVI. 23 (1867).

Formosa: near Tamsuy, 1864, *R. Oldham* (No. 107, in Herb. Kew.).

Subsect. 2. CYMOSAE Rehder, n. subsect.

Latisepalae Schneider in *Mitt. Deutsch. Dendr. Ges.* XIII. 176 (in part) (1904).

Inflorescence distinctly cymose, much broader than high, sometimes few-flowered; calyx-teeth much shorter than the tube, incurved at maturity; filaments, at least those of the inner stamens, exceeding the anthers, those of the outer row distinctly bidentate, these of the inner row with obtuse or irregularly dentate apex; styles scarcely half as long as the petals. Stellate hairs of the leaves with few rays, those of the under side usually with 5 or 6, occasionally with 7 rays.

7. **Deutzia pilosa** Rehder. *See* p. 8.

8. **Deutzia setchuenensis** Franchet in *Jour. de Bot.* X. 282 (1896).

Deutzia scabra, var. ? *cymis pauciforis* Hemsley in *Jour. Linn. Soc.* XXIII. 277 (1887).

Eastern Szech'uan: near Ch'eng-k'ou (ex Franchet). — Western Hupeh: Ichang, *A. Henry* (No. 3585); without locality, *A. Henry* (Nos. 3480, 4139); Fokien: April to June 1905, *S. T. Dunn* (Herb. Hongkong Bot. Gard. No. 2676).

I have not seen the type specimen itself, but a good photograph of it. As this and Franchet's description agrees fairly well with the specimens cited above, I trust that I have made no mistake in referring them to *D. setchuenensis*.

Deutzia setchuenensis, var. **longidentata** Rehder. See p. 8.

Deutzia setchuenensis, var. **corymbiflora** Rehder. See p. 9.

9. **Deutzia Silvestrii** Pampanini in *Nuov. Giorn. Bot. Ital.* n. ser. XVII. 282 (1910).

Western Hupeh: near Siang-yang, *C. Silvestri* (Nos. 671, 868, 869, 870, 872).

I have seen no specimen of this species; according to the description by Pampanini it is nearest to *D. setchuenensis* var. *corymbiflora*, but differs chiefly in the longer calyx-lobes and narrower rose-colored petals.

10. **Deutzia coriacea** Rehder. See p. 9.

11. **Deutzia Fargesii** Franchet. See p. 10.

Subsect. 3. STENOSEPALAE Schneider in *Mitt. Deutsch. Dendr. Ges.* XIII. 184 (1904).

Calyx-teeth lanceolate or sometimes oblong-ovate, as long or longer, rarely slightly shorter, than the tube; the cymes usually rather dense and many-flowered, more or less panicle-like. Besides the following species *D. staminea* R. Brown and probably *D. macrantha* Hooker f. and Thomson, which I have not seen, belong to this group.

12. **Deutzia glomeruliflora** Franchet. See p. 10.

13. **Deutzia subsessilis** Rehder. See p. 11.

14. **Deutzia purpurascens** Rehder, n. sp.

Deutzia discolor, var. *purpurascens* Franchet apud Henry in *Le Jardin*, 1894, 147, fig. 64. — Sargent in *Gard. and For.* VII. 284, 287, fig. 84 (1894). — *Gard. Chron.* ser. 3, II. 45, fig. 25 (1899). — Hooker f. in *Bot. Mag.* CXXVI. t. 7708 (1900). — Lemoine in *Jour. Soc. Hort. France*, sér. 4, III. 301 (1902). — Schneider, *Ill. Handb. Laubholzk.* I. 381, fig. 244 e–f (1905).

Yunnan, *J. M. Delavay* (ex Franchet). — In cultivation (Arnold Arboretum, etc.).

Deutzia purpurascens differs in several important characters from *D. discolor*, and I consider it a well marked species much less closely related to *D. discolor* than any of the following species of this group. It is particularly well distinguished by the stellate hairs of the under side of the leaves which have only 5–7 rays, while in all the following species they have 10–14 rays, and besides from *D. discolor* by its smaller generally ovate leaves, greenish beneath, smaller inflorescence, purplish flowers, and shorter stamens with the filaments exceeding the anthers.

Deutzia purpurascens, var. **pauciflora** Rehder, n. var.

Frutex metralis ramulis gracilibus, junioribus stellato-pilosis, annotinis elevato-asperatis flavido-griseis. Gemmae parvae perulis late ovatis acutiusculis extus dense pubescentibus. Folia ovata v. oblongo-ovata, acuminata, basi rotundata v. late cuneata, argute serrulata, 1.5–3.5 cm. longa et 1–1.4 cm. lata, laete viridia, concoloria, supra pilis 4–5-radiatis, subtus pilis 5–6-radiatis sparse conspersa; petioli sparse stellato-pilosi, 1–2 mm. longi. Cymae breves, 1–3-florae, stellato-pilosae, ramulos laterales brevissimos terminantes; pedicelli 2–4 mm. longi; calyx stellato-pilosus, dentibus ovato-oblongis obtusiusculis rubescentibus tubum aequantibus v. paullo longioribus; petala ovato-oblonga, 9 mm. longa, margine erosa, alba; filamenta antheras superantia, exteriora dentibus obtusis, interiora apice obtuso;

styli 3, stamina subaequantes. Capsula hemispherica, 4 mm. diam., lobis reflexis deciduis.

— Yunnan: Mengtze, "N. Mts.", alt. 1800 m., *A. Henry* (No. 9475[a]).

Differs from the type chiefly in its few-flowered inflorescence, white petals, and in the apex of the filaments or of the teeth of the filaments being obtuse. Possibly a distinct species.

15. **Deutzia Wilsonii** Duthie in *Bot. Mag.* CXXXII. t. 8083 (1906).

Eastern Szech'uan: South Wushan, cliffs, May 1901, *E. H. Wilson* (Veitch Exped. No. 1916[a]). In cultivation; raised from seed collected by E. H. Wilson (Veitchian nurseries, Combe Wood).

This and the following three species are closely related to *D. discolor* Hemsley, and I am not yet quite convinced that they are really specifically distinct; the characters on which they are based seem to be rather slight and inconstant, but as the material I have seen of each of these species is rather scant, I do not feel justified to make a change, until more and completer material is available.

16. **Deutzia globosa** Duthie in *Gard. Chron.* ser. 3, XL. 238 (1906).

Raised from seed collected by E. H. Wilson in Hupeh and cultivated in the Veitchian nurseries, Combe Wood: Ex hort. Veitch. No. 118[a]/2, June 6, 1905 (Herb. Kew, type).

17. **Deutzia Vilmorinae** Lemoine, *Cat.* No. 158, p. vii, fig. (1904). — C. K. Schneider in *Mitt. Deutsch. Dendr. Ges.* XIII. 182 (1904); *Ill. Handb. Laubholzk.* I. 381 (1905).

Western Hupeh: without locality, June 1900, *E. H. Wilson* (Veitch Exped. No. 940); June 1901 (No. 1998). Raised from seed collected by Farges in Szech'uan and first distributed by Lemoine of Nancy.

18. **Deutzia reflexa** Duthie in *Gard. Chron.* ser. 3, XL. 238 (1906).

Raised from seed collected by E. H. Wilson in Hupeh and cultivated in the Veitchian nurseries, Combe Wood; Wilson, No. 1253, June 2, 1910 (*W. J. Bean* in Herb. Kew.).

19. **Deutzia discolor** Hemsley. *See* p. 12.

19 × 20. **Deutzia discolor × mollis** Rehder, n. hybr.

Frutex ramulis junioribus parce stellato-pilosis, annotinis peridermate castaneo in lamellas tenues soluto. Folia oblonga, acuminata, basi late cuneata v. rotundata, argute serrulata, 4.5–6 cm. longa et 1.5–2.2 cm. lata, supra pilis 4–5-radiatis conspersa, subtus molliter pubescentia, pilis 7–10-radiatis (plerumque 8-radiatis) radio centrali praesertim ad nervos instructis obtecta; petioli pilis heteromorphis praediti, 3 mm. longi. Cyma convexa multiflora; calycis dentes ovato-oblongi, abrupte acuminati, tubum pube homomorpha obtectum aequantes; petala 5–6 mm. longa, ovato-oblonga, aestivatione plerumque valvata, sed etiam partim imbricata; stamina petalis triente breviora, filamentis staminum exteriorum interdum e basi dilatata sensim attenuata sed saepius subito contractis et angulatis, interiorum plerumque infra apicem in dentes brevissimos productis, antheris sterilibus; styli tres, stamina paullo superantes.

Western Hupeh: June 1901, *E. H. Wilson* (Veitch Exped. No. 1917) (Herb. Arnold Arboretum.).

Wilson's No. 1917 is quoted by the author of *D. mollis* as belonging to that species and it looks indeed at the first glance only like a slight variation, but a closer examination reveals certain features which indicate at once its hybrid origin, particularly the irregular aestivation and the sterile anthers. All the other characters in which the plant in question differs from *D. mollis* point toward *D. discolor* as the other parent; the stellate hairs of the under side of the leaves have 12–14

rays in *D. discolor* and generally 4 rays with a central ray in *D. mollis*, while in the hybrid they have generally 8 rays only part of them with a central ray; the calyx-lobes, which are lanceolate and longer than the tube in *D. discolor* and broadly ovate, abruptly acuminate and about half as long as the tube in *D. mollis*, are oblong-ovate, acuminulate and about as long as the tube in the hybrid; the filaments, which are gradually narrowed toward the apex in *D. mollis* and distinctly toothed in *D. discolor*, are in the hybrid mostly abruptly contracted or have only very short teeth; also the shape of the leaves and some other minor characters are intermediate.

20. **Deutzia densiflora** Rehder. See p. 12.

21. **Deutzia albida** Batalin in *Act. Hort. Petrop.* XIII. 97 (1893).

Deutzia discolor, var. *albida* Schneider in *Mitt. Deutsch. Dendr. Ges.* XIII. 183 (1904).

Kansu: banks of the river Pai-shui between Lidshapu and Kwantin, *G. Potanin* (ex Batalin).

I have not seen the type specimen, but according to the description the species differs from *D. discolor* in so many points that I cannot follow Schneider in referring it to that species as a variety.

22. **Deutzia longifolia** Franchet. See p. 13.

Subsect. 4. GRANDIFLORAE Rehder, n. subsect.

Chiefly characterized by the 1–3-flowered inflorescence borne at the end of short leafy branchlets, by the partly superior ovary, the lanceolate calyx-teeth and the re-curved teeth of the filaments.

23. **Deutzia grandiflora** Bunge in *Mém. Sav. Étr. Acad. Sci. St. Pétersbourg* II. 104 (*Enum. Pl. Chin. Bor.*) (1832). — Maximowicz in *Mém. Acad. Sci. St. Pétersbourg*, sér. 7, X. No. XVI. 30 (1867).

D. Baroniana, var. *insignis* Pampanini in *Nuov. Giorn. Bot. Ital.* n. ser. XVII, 282 (1910).

Chihli: *A. Bunge;* Kalgan road near Pekin, October 5, 1905, *J. G. Jack;* Weichang, 1910, *W. Purdom* (No. 16). Hupeh: April 1901, *E. H. Wilson* (Veitch Exped. No. 1870); Ou-tan-shan, *C. Silvestri* (ex Pampanini).

The Hupeh specimens differ from the type in their narrower leaves and in the elongated and somewhat wavy rays of the hairs of the under side of the leaves, so that the tomentum appears more villose and not as closely appressed as in the type; in this respect it approaches the following variety. I have seen no specimen of Pampanini's var. *insignis*, but from his description it appears not to be different from typical *D. grandiflora*.

Deutzia grandiflora, var. **Baroniana** Rehder, n. var.

Deutzia Baroniana Diels in *Bot. Jahrb.* XXIX. 372 (1901).

Northern Shensi: Tui-kia-shan, *G. Giraldi* (No. 1656 ex Diels); Shan-geus, Lao-y-san, May 19, 1899, *G. Giraldi* (No. 4522).

Differs from the type chiefly in the heteromorphous and thinner grayish green pubescence of the under side of the narrower leaves which are usually broadly cuneate at the base; the stellate hairs have only 5–7 rays mostly with a central ray, not 7–9 without central ray as in the type. The flowers of No. 4522 agree with those of the type. I cannot follow Schneider in referring the Shensi plant to *D. grandiflora*, var. *glabrata* Maximowicz; the pubescence of the latter is homomorphous, the hairs having 6–9 short rays and are only sparingly distributed over the lower surface, not touching each other.

Deutzia grandiflora, var. *β* **minor** Maximowicz in *Mém. Acad. Sci. St. Pétersbourg*, sér. 7, X. No. XVI. 31 (1867).

Mongolia: *Tatarinoff* (ex Maximowicz). Chili: near Kalgan, *Ladyshinski* (ex Maximowicz).

Of this variety I have seen no specimen; it differs according to Maximowicz in its smaller leaves and flowers and shorter styles.

Deutzia grandiflora, var. γ **glabrata** Maximowicz in *Mém. Acad. Sci. St.Pétersbourg*, sér. 7, X. No. XVI. 31 (1867)

Chili: near Pekin, *Tatarinoff*.

24. **Deutzia prunifolia** Rehder, n. sp.

Frutex erectus ramulis junioribus glabris pallide fusco-brunneis, vetustioribus griseo-brunneis. Gemmae perulis circa 10 exterioribus, ovato-lanceolatis acutis, extus sparse stellato-pilosis, castaneis. Folia ovata, v. rhombico- v. elliptico-ovata, acuminata, basi late cuneata, inaequaliter v. fere dupliciter fimbriato-denticulata, dentibus minutis acuminatis, 3.5–5 cm. longa et 1.5–3 cm. lata, flavo-viridia, concoloria, supra pilis 4–5-radiatis laxe conspersa, subtus glabra pilis simplicibus ad costam mediam et paucis ad basin costarum lateralium exceptis, interdum facie pilis rarissimis 5-radiatis instructa, utrinsecus costis 5–7 supra impressis subtus elevatis; petioli glabri, 3–5 mm. longi. Flores desunt. Capsulae 1–3 in apice ramulorum, solitariae pedicellis glabris gracilibus circa 1 cm. longis, binae v. ternae pedunculo 1–1.5 cm. longo insidentes pedicellis circa 5 mm. longis; capsula (immatura) depresso-globosa, circa 5 mm. diam., extus glabra, semisupera, apice ovarii et basi stylorum 3–4 sparse stellato-pilosa, dentibus calycis lanceolatis reflexis tubum saltem aequilongis partim persistentibus.

Korea: Ping Yang, September 18, 1905, *J. G. Jack* (Herb. Arnold Arboretum).

Closely related to *D. grandiflora* Bunge, and particularly to its glabescent variety γ *glabrata* which, however, differs in the shorter petioles, the shorter scarcely acuminate teeth of the leaves, and their less prominent venation, in the hairs of the upper surface having usually 5–6 rays and those of the lower surface 6–8 rays and also in the shorter peduncles and pedicels. *Deutzia hamata* Koehne, which is similar in foliage, differs in the peculiar development of the pubescent calyx.

25. **Deutzia hamata** Koehne in *Bot. Jahrb.* XXXIV. No. LXXV. 37 (1905).

Shantung: Laushan Mts., *Zimmermann* (Nos. 335, 348 ex Koehne).

This species is well marked by the peculiar development of the calyx which has the margin incurved forming a hollow ring open toward the apex of the ovary and partly covering it; the spreading lanceolate calyx-lobes are borne on the outside of the ring.

Subsect. 5. COREANAE Rehder, n. subsect.

Distinguished from all the other Deutzias by the solitary or rarely two flowers appearing from leafless buds and borne on short stalks hidden by the bud-scales; calyx-tube ovoid, truncate at the apex with short triangular lobes; styles slender, 3; leaves on both sides sparingly covered with hairs with 4–5 rays.

26. **Deutzia coreana** Léveillé in Fedde, *Rep. Sp. Nov.* VIII. 283 (1910).

Korea: Diamant Mts., June 1908, *U. Faurie* (No. 364); Pouck Han, Seoul, September 25, 1905, *J. G. Jack*.

The leaves are sparingly furnished on both sides with stellate hairs, those of the upper side having generally 4, those of the under side generally 5 rays; the capsule is about 4 mm. long, distinctly longer than broad and thinly covered with stellate hairs having 6–7 rays; styles 3.10 mm. long.

Sect. II. **MESODEUTZIA** Schneider in *Mitt. Deutsch. Dendr. Ges.* XIII (1905).

27. **Deutzia mollis** Duthie. See p. 13.

28. **Deutzia corymbosa** R. Brown apud Royle, *Ill. Bot. Himal.* 216, t. 46, fig. 2

(1839). — Maximowicz in *Mém. Acad. Sci. St. Pétersbourg*, sér. 7, X. No. XVI. 33, fig. 14–17 (1867). — Clarke in Hooker f. *Fl. Brit. Ind.* II. 406 (1878).u

Deutzia corymbosa R. Brown ex Wallich, *Cat.* No. 3652 (nom. n dum) (1828).

Deutzia parviflora, var. *corymbosa* Franchet in *Jour. de Bot.* X. 283 (1896).

Deutzia corymbosa, var. *typica* Schneider in *Mitt. Deutsch. Dendr. Ges.* XIII. 184 (1904); *Ill. Handb. Laubholzk.* I. 382, fig. 244 g-i (1905).

Shensi: Ki-fon-shan, near Pao-ki-scen, *G. Giraldi* (ex Engler).

I have seen no specimens of this species from China, and it seems doubtful whether the specimen from Shensi really belongs here.

Deutzia corymbosa, var. **yunnanensis** Franchet in *Jour. de Bot.* X. 283 (1896), Yunnan (ex Franchet).

This variety, incompletely described by Franchet without citation of specimens, probably does not belong to *D. corymbosa;* it is possibly closely related to *D. rubens* Rehder.

29. **Deutzia parviflora** Bunge in *Mém. Sav. Etr. Acad. Sci. St. Pétersbourg* II. 105 (*Enum. Pl. Chin. Bor.*) (1832). — Maximowicz in *Mém. Acad. Sci. St. Pétersbourg*, sér. 7, X. No. XVI. 33, t. 3, fig. 18–23 (1867). — Sargent in *Gard. and For.* I. 363, fig. 57 (1888).

Deutzia parviflora, β *amurensis* Regel in *Mém. Acad. Sci. St. Pétersbourg*, sér. 7, IV. No. IV. 63, t. 5, fig. 7–14 (1861); in *Gartenfl.* XI. 278, t. 370, fig. 4–12 (1862).

Deutzia parviflora, α *Bungei* Franchet in *Jour. de Bot.* X. 283 (1896).

Deutzia parviflora, β *mongolica* Franchet, l. c.

Deutzia corymbosa, var. *parviflora* Schneider in *Mitt. Deutsch. Dendr. Ges.* XIII. 184 (1904); *Ill. Handb. Laubholzk.* I. 382, fig. 244 k-m (1905).

Chili: Weichang, 1910, *W. Purdom* (No. 40). Mandshuria: river Sutár, July 1895, *V. Komarov* (No. 836); without locality, 1891, *S. Korshinsky;* mts. east of Harbin, August 31, 1903, *C. S. Sargent.* Korea: Fusan, May 1906, *U. Faurie* (No. 361).

Franchet's variety β *mongolica* does not seem sufficiently distinct to be separated as a variety; of the specimens named above only Purdom's No. 40 with simple hairs along the midrib beneath would belong to this variety; all the others must be referred to his var. α *Bungei*, though I never saw a specimen with perfectly glabrous leaves; they all have at least a few hairs, sometimes nearly imperceptible, on the lower surface.

Deutzia parviflora, var. **musaei** Lemoine in *Jour. Hort. Soc. France*, sér. 4, III. 303 (1902).

This variety, described from specimens cultivated at the Jardin des Plantes at Paris, differs from the type chiefly in the larger more pointed leaves and denser inflorescence with fewer creamy white flowers.

30. **Deutzia micrantha** Engler in *Bot. Jahrb.* XXXVI. Beibl. No. LXXXII. 51 (1905).

Shensi: Tsin-ling-shan, July 1900, *G. Giraldi* (No. 7179); In-kia-p'u, *G. Giraldi* (No. 2526, ex Engler).

Closely related to *D. parviflora* Bunge, from which it differs in the much smaller flowers, in the shape of the inflorescence, and in the stellate hairs of the under side of the leaves being more numerous and having generally 8–10 rays. The inflorescence much resembles in its mode of branching that of *D. mollis* Duthie, the partial inflorescence being rather dense and borne on elongated and remote branchlets.

31. **Deutzia glabrata** Komarov in *Act. Hort. Petrop.* XXII. 433 (1903).
Deutzia glaberrima Koehne in *Bot. Jahrb.* XXXIV. Beibl. No. LXXV. 38 (1904).
Deutzia Fauriei Léveillé in Fedde, *Rep. Nov. Sp.* VIII. 283 (1910).
Korea: Diamond Mts., June 24, 1906, *U. Faurie* (No. 360). Pomasa, May 21, 1906, *U. Faurie* (No. 362). Shantung: Laushan Mts., *Zimmermann* (No. 349 ex Koehne). Also in Mandshuria (ex Komarov).

32. **Deutzia rubens** Rehder. See p. 13.

33. **Deutzia hypoglauca** Rehder, n. sp.
Frutex ramulis gracilibus glabris rubro-fuscis, annotinis peridermate solubili. Gemmae perulis lanceolatis glabris obscure castaneis. Folia membranacea, ovato-oblonga v. elliptico-oblonga v. oblonga, acuminata, basi cuneata v. rotundata, argute minuteque serrulata, 4–6 cm. longa et 1.5–2.5 cm. lata, supra flavo-viridia, pilis paucis plerumque 4-radiatis conspersa, subtus glauca, glaberrima, utrinsecus 5–6-costata; petioli glaberrimi, 2–4 mm. longi. Cyma pluriflora, pedunculata, ebracteata, glabra, pedicellis gracilibus, 5–7 mm. longis, apice tantum sparse stellato-pilosis; calycis lobi late ovati, obtusi, dimidium tubum laxe stellato-pilosum vix superantes; petala obovata, alba, 9 mm. longa, extus sparse stellato-pilosa; stamina petalis paullo breviora, exteriora filamentis apice bidentatis dentibus antheram paullo superantibus, interiora filamentis lineari-oblongis apice leviter bidentata antheram paullo supra medium faciei interiori affixam gerentibus; styli 3, staminibus paullo breviores.
Hupeh: *E. H. Wilson* (Veitch Exped. No. 1919[a], Herb. Arnold Arboretum).
From all the other species of this group this is easily distinguished by the glaucous and quite glabrous under side of the leaves.

CARDIANDRA Sieb. and Zucc.

Determined by Alfred Rehder.

Cardiandra sinensis Hemsley in *Gard. Chron.* ser. 3, XXXIII. 82 (1903).
Kiangsi: Kuling, wet shady places, common, alt. 1200 m., July 30, 1907 (No. 1545).
Wilson's specimen agrees exactly with Faber's specimen from Ningpo. Hemsley (*Jour. Linn. Soc. Bot.* XXIII. 278) cites in 1887 a specimen from Kiangsi collected by Forbes under *C. alternifolia* Siebold & Zuccarini, but in his description of *C. sinensis* in 1903 he only cites Faber's specimen from Ningpo and Wilson's No. 2426 (Veitch Exped.) from Hupeh without mentioning the Kiangsi specimen. There can be, however, little doubt that Faber's Kiangsi specimen and also David's specimen from Kiangsi cited by Franchet as *C. alternifolia* (*Pl. David.* I. 126), belong to the same species as Wilson's specimen from Kiangsi, namely to *C. sinensis*, and that *C. alternifolia* does not occur in China.

HYDRANGEA L.

Determined by ALFRED REHDER.

Hydrangea umbellata Rehder, n. sp.

Frutex metralis v. paullo altior ramulis fusco-purpureis, novellis crispule pubescentibus, annotinis cortice laevi sine lenticellis, demum in lamellas tenues solubili. Folia membranacea, oblongo-lanceolata v. obovata, acuminata, basi cuneata, 5–9 cm. longa et 2–3 cm. lata, denticulato-serrata basi excepta, supra luteo-viridia, glabra costa sparse villosa excepta, subtus glaucescentia, sparse ad venas densius strigillosa et in axillis venarum barbata; petioli crispule pubescentes, 6–13 mm. longi. Inflorescentia umbelliformis multiflora, in apice ramulorum sessilis, crispe pubescens, plerumque 5-radiata, pedicellis circa 5 mm. longis; flores fertiles desunt; flores radiantes steriles graciliter pedicellati, persistentes, 4–sepali sepalis late ellipticis v. subrotundatis, crassiusculis, plus minus dentatis, 2–2.5 cm. longis et interdum ad 2.5 cm. latis. Capsula (immatura) semisupera, cum stylis 6 mm. longa, parte superiore libera paullo longiore quam tubus calycis pilis crispulis sparsis adspersi; styli 3, partem liberam capsulae subaequantes, sat graciles; semina late elliptica, exalata.

Kiangsi: Kuling, thickets, common, alt. 1200 m., July 29, 1907 (No. **1605**).

Closely related to *H. scandens* De Candolle (*H. virens* Siebold), which differs chiefly in its smaller sparingly toothed leaves, in the few-flowered cymes with the sterile flowers with three deciduous entire sepals, in the smaller capsules with longer styles and in its lax habit with very slender often drooping branches.

Hydrangea Davidii Franchet in *Nouv. Arch. Mus. Paris*, sér. 2, VIII. 227 (*Pl. David.* II. 44) (1885).

Western Szech'uan: Mupin, thickets, alt. 1800–2250 m., June and October 1908 (No. **1159**), alt. 2400–2700 m., October 1910 (No. **4343**); alt. 1500–1800 m., Nov. 1908 (No. **1249**); Wa-shan, thickets, alt. 1500–2100 m., June and November 1908 (No. **1159**); without locality, alt. 1500–2400 m., July 1903 (Veitch Exped. No. 3563).

Wilson's specimens differ from Franchet's description slightly in having usually 4 sepals and in the leaves being up to 6 cm. broad. The capsule, which is not described by Franchet, is subglobose, 2–3 mm. in diameter, the free part longer than the tube of the calyx; the seeds are broadly elliptic, wingless, scarcely 1 mm. long and light yellowish brown.

Hydrangea paniculata Siebold in *Nov. Act. Acad. Leop. Carol.* XIV. pt. ii. 690 (*Syn. Hydrang.*) (1829).

Kiangsi: Kuling, abundant, side of streams, July 27, 1907 (No. 1601).

This is as far as I know the first time that *H. paniculata* has been found in China. The specimen differs very little from the Japanese plant; the serratures of the leaves are strongly incurved, the veins are yellow on the upper side and strigosely pubescent below, while in the Japanese specimens the leaves are nearly glabrous and the teeth are slightly spreading.

Hydrangea hypoglauca Rehder, n. sp.

Frutex ad 3 m. altus ramulis junioribus castaneo-purpureis glabris, lenticellis inconspicuis institutis. Folia ovata v. ovato-oblonga, acuminata, basi rotundata v. late cuneata, argute mucronulato-serrulata, supra flavo-viridia, glabra nervis strigosis flavescentibus exceptis, subtus glauca (sub lente dense papillosa), ad nervos dense pubescentia ceterum glabra, 7–10 cm. longa et 2.5–4.5 cm. lata; petioli graciles, parce pilosi, 2–3 cm. longi. Cyma laxa, convexa, radiis 5–7 decussatis distantibus composita, strigosa; flores radiantes 2–3 cm. diam., sepalis 3–4 late ovalibus v. obovatis albis; calycis dentes florum fertilium ovato-triangulares, acuminata; petala alba, ovato-oblonga, concava, apice cucullata, 2 mm. longa; stamina inaequalia, breviora petalis subaequilongis, longiora 3 mm. longa; styli 3, erecti; ovarium semisuperum. Capsulae maturae desiderantur.

Western Hupeh: *A. Henry* (No. 6056, type); north and south of Ichang, thickets, alt. 900–1800 m., June 1907 (No. 2397); no locality, June 1901 (Veitch Exped. No. 1271).

Allied to *Hydrangea xanthoneura* Diels which differs chiefly in the more or less elliptic leaves being green on the under side with strigose veins and in the triangular obtusish sepals.

Hydrangea xanthoneura Diels in *Bot. Jahrb.* XXIX. 373 (1900).

Szech'uan: Nanch'uan, Ching-lung-tsui, August 9, 1891, *A. von Rosthorn* (No. 354, type); Wa-shan, thickets, alt. 1800–2600 m., July and November 1908 (Nos. 2409, flowers, and 1354, fruits); Tachien-lu, thickets, alt. 2400–2700 m., October 1910 (No. 4391); Pan-lan-shan, west of Kuan Hsien, thickets, alt. 2200 m., August 1910 (No. 4484). Mt. Omei, July 1904 (Veitch Exped. Nos. 4899 and 4900).

This is apparently a very variable species and closely related to *H. Bretschneideri* from which it can be separated only by the glabrous or glabrescent under side of the leaves more or less cuneate at the base. In the type the under side of the leaves is glabrous or nearly glabrous except the strigose veins which are yellowish on the upper side; the branchlets are bright reddish brown with the bark without lenticels and soon separating into thin flakes. Wilson's Nos. 4391 and 4899 seem nearest to the type. No. 4484 is also near the type, except that it has the leaves loosely pubescent beneath, while the other numbers of Wilson differ in their large foliage,

the leaves attaining a length of 15–20 cm. with the petioles 4 cm. long and the inflorescence measuring 25 cm. in diameter.

Hydrangea xanthoneura, var. **Wilsonii** Rehder, n. var.

A typo recedit ramulis hornotinis griseo-flavescentibus, annotinis griseis v. avellaneis lenticellis pallidis instructis cortice adhaerente et foliis junioribus subtus sparse adpresse pubescentibus. Arbor ad 5 m. alta.

Western Szech'uan: Ta-p'ao-shan, northeast of Tachien-lu, woodlands, alt. 2400–2800 m., July 3, 1908 (No. **2407**, type); Pan-lan-shan, west of Kuan Hsien, thickets, alt. 2200 m., June 26, 1908 (No. **2410**); Wa-ssu country, Wên-chuan Hsien, thickets, alt. 1600–2400 m., July 1908 (No. **2408**).

The color and behavior of the bark would seem to afford good specific differences, if it were not for the following specimens which are intermediate in this respect between the type and the variety, but are apparently closer to the variety.

Hydrangea xanthoneura, var. **glabrescens** Rehder, n. comb.

Hydrangea serrata Koehne, *Deutsch. Dendr.* 189 (not De Candolle) (1893).
Hydrangea Bretschneideri, var. *glabrescens* Rehder in Bailey, *Cycl. Am. Hort.* II. 784 (1900); in *Mitt. Deutsch. Dendr. Ges.* XII. 121 (1903).

A typo recedit foliis minoribus, tenuioribus et plerumque angustioribus, saepe grossius serratis, venis supra non flavidis, subtus fere glabris v. sparse pubescentibus nec strigosis.

Seed collected by Dr. E. Bretschneider near Pekin and introduced into cultivation: Hort. Bot. Berol.; *E. Koehne*, Herb. Dendr. (No. 113); Arnold Arboretum, in Herb. Arnold Arboretum.

It is with some hesitation that I refer this variety to *H. xanthoneura*, but if the pubescence is to be considered the chief distinguishing character between this species and *H. Bretschneideri*, it must be referred to the former.

Western Szech'uan: Mupin, thickets, alt. 1500–2500 m., June and October 1908 (Nos. **1183**, **1327**); thickets around Tachien-lu, alt. 2100–2400 m., October 1908 (No. **1347**); near Tachien-lu, 2700–3600 m., *A. E. Pratt* (No. 285). Western Hupeh: Hsing-shan Hsien, thickets, alt. 1500–1800 m., July 1907 (No. **2398**); no locality, June 1901 (Veitch Exped. No. 2184). Yunnan: Mengtze, alt. 2700 m., *A. Henry* (No. 10235).

Hydrangea pubinervis Rehder, n. sp.

Frutex ad 3 m. altus ramulis junioribus glabrescentibus purpureis, vetustioribus castaneis lenticellis sparsis instructis. Folia membranacea, alte elliptica, acuminata, basi late cuneata, grossius ser-

rato-dentata, supra flavo-viridia, glabra v. fere glabra nervis strigosis exceptis, subtus pallidiora, tota facie crispulo-villosa ad nervos pilis flavidis adpressis dense obtecta, 6–9 cm. longa et 3.5–4.5 cm. lata; petioli graciles, 1.5–2 cm. longi, pubescentes. Cyma fere plana, e radiis 5–7 decussatis distantibus composita, strigosa; flores radiantes circa 2.5 cm. diam. sepalis 4 late ovalibus v. obovatis; calycis dentes florum fertilium triangulares; petala oblongo-ovata, apice cucullata, 2 mm. longa; stamina inaequalia, minora petalis breviora, majora petalis paullo longiora; ovarium semisuperum; stylis 3 erectis. Capsulae maturae desiderantur.

Western Szech'uan: Wa-shan, thickets, alt. 1500–2250 m., July 1908 (No. **2411**).

Closely related to *H. xanthoneura* Diels which is easily distinguished by the leaves being serrulate, narrower and larger and on the under side nearly glabrous except the strigose veins.

Hydrangea Bretschneideri Dippel, var. **setchuenensis** Rehder, n. var.

A typo recedit foliis majoribus ad 20 cm. longis et 11 cm. latis, venis saepe flavescentibus, petiolis densius pubescentibus, ramulis junioribus laxe et sparse pubescentibus, annotinis pallide brunneis lenticellis conspicuis instructis, cymis usque ad 25 cm. diam., laxis, convexis, interdum fere paniculiformibus.

Western Szech'uan: Wa-ssu country, Wên-chuan Hsien, thickets, alt. 2300–2700 m., July and November 1908 (No. **1323**). Western Hupeh: Fang Hsien, rocky places, alt. 1800 m., August 1907 (No. **2399**).

The Szech'uan and the Hupeh plants differ slightly; the former has the leaves generally ovate-oblong and approaches also in the somewhat darker color of the branchlets the type, while the leaves of the Hupeh plant are elliptic-oblong or oblong-obovate.

Hydrangea Bretschneideri, var. **lancifolia** Rehder, n. var.

A typo recedit ramulis cinereis lenticellis conspicuis instructis, foliis oblongo-lanceolatis, supra sparse strigosis, subtus tota facie dense crispulo-villosis et ad nervos strigosis, 7–12 cm. longis et 2–3 cm. latis.

Western Szech'uan: Tachien-lu, thickets, alt. 2100–2400 m., June 1908 (No. **2412**).

This variety might possibly be considered a pubescent and narrow-leaved form of *H. xanthoneura*, since it has almost the same kind of bark as var. *Wilsonii* of that species.

Hydrangea Sargentiana Rehder, n. sp.

Frutex robustus bimetralis; ramuli juniores dense villosi et excrescentiis crebris e trichomatibus basi confluentibus purpureis formatis praediti. Folia ovato-oblonga, acuminata, basi rotundata v. interdum subcordata v. late cuneata, inaequaliter et fere dupliciter ciliato-dentata dentibus setaceo-acuminatis, 15–30 cm. longa et 6.5–16 cm. lata, supra obscure viridia, scabro-strigosa, subtus dense villoso-hirta, ad nervos hirto-pilosa excrescentiis purpureis intermixtis; petioli dense pilosi et excrescentiis purpureis instructi, 3–9 cm. longi. Cyma fere plana, 12–16 cm. diam., densa, dense pubescens, e radiis oppositis congestis 7–13 composita; flores radiantes graciliter pedicellati 2.5–3.5 cm. diam. albi, sepalis 4, orbiculato-obovatis integris; sepala florum fertilium late triangularia, tubo dimidio breviora; petala ovata, mox caduca, apice interdum calyptratim coherentia, 2 mm. longa; stamina breviora petalis aequilonga, longiora circa 4 mm. longa; styli plerumque 3 v. interdum 2. Capsula hemispherica, leviter 10–12-costata, apice truncata, 3 mm. diam.; semina elliptica, utrinque in alam brevem contracta, striata, flavo-brunnea, circa 0.7 mm. longa.

Western Hupeh: Hsing-shan Hsien, thickets, alt. 1500–1800 m., August and December 1907 (No. **772**).

Adistinct species with large and handsome foliage similar to *H. robusta* Hooker f. & Thomson, which is easily distinguished by its strigose pubescence, ovate leaves, by the serrate sepals of the sterile flowers and the larger capsule. The allied *H. Rosthornii* Diels also differs in its strigose pubescence and ovate leaves.

Hydrangea villosa Rehder, n. sp.

Frutex 1–3 m. altus ramulis junioribus albido- v. fulvo-villosis angulatis. Folia elliptico- v. oblongo-lanceolata, acuminata, basi cuneata, fimbriato-denticulata dentibus setaceo-acuminatis, 10–20 cm. longa et 3.5–6.5 cm. lata, supra obscure flavo-viridia, scabro-strigosa pilis basi bulbosis, ad costam mediam pilis longioribus albidis instructa, subtus pilis patentibus hirto-villosis incano-tomentosa, ad nervos pilis ad 3 mm. longis et saepe, praesertim ad costam mediam, fulvescentibus v. fulvis praedita; petioli villosi saepe pilis fulvis longis patentibus interspersis, 1–4 cm. longi. Cyma convexa, interdum plana, albido- v. fulvo-villosa, radiis oppositis 7–9 satis remotis composita; flores radiantes graciliter pedicellati, 3–4 cm. diam., coerulescentes, sepalis 4 orbiculato-obovatis plerumque crenulatis; pedicelli florum fertilium strigosi, tubum calycis glabri v. basi tantum strigosi subaequantes, dentibus triangularibus vix dimidium tubum aequantibus; petala oblongo-ovata, acutiuscula, concava, patentia,

2 mm. longa; stamina valde inaequalia, minora petalis subaequilonga, majora eis duplo longiora; styli 2, patentes, apice incrassati. Capsula hemispherica, apice truncata, leviter costata, 2.5–3 mm. diam.; semina late elliptica, utrinque in alam constricta, striata, flavido-brunnea, circa 0.6 mm. longa.

Western Szech'uan: Wa-ssu country, Wên-chuan Hsien, thickets, alt. 1800 m., July and November 1908 (No. **1227**, type), alt. 1200–2700 m., July and November 1908 (No. **1250**), October 1910 (No. **4302**); Pan-lan-shan, west of Kuan Hsien, woodlands, alt. 2400 m., August 1910 (No. **4483**).

Easily distinguished from allied species by its villous pubescence.

Hydrangea glabripes Rehder, n. sp.

Frutex metralis ramulis glabris v. fere glabris, vetustioribus flavo-griseis. Folia lanceolata, acuminata, basi late cuneata v. rotundata, dentato-serrulata serraturis mucronulato-acuminatis, 6–12 cm. longa et 2–3 cm. lata, supra obscure flavo-viridia, satis dense strigulosa, subtus pallida, hirto-villosa costa fere glabra excepta; petioli graciles, 1.5–4 cm. longi, glabri, tantum supra in canaliculo parce pubescentes. Cyma fere plana v. leviter convexa, 8–10 cm. diam., strigosa, radiis brevibus 7–9; flores radiantes pauci, rosei, sepalis 4, late obovatis, leviter emarginatis integris; flores fertiles rosei; calycis tubus hemisphericus, glaber ima basi excepta, dentibus triangularibus minutis; petala oblongo-ovata, 1.5 mm. longa; stamina inaequalia, longiora 4 mm. longa; styli 2. Capsulae maturae desunt.

Western Hupeh: Fang Hsien, thickets, alt. 1200–1800 m., August 1907 (No. **2391**).

Closely related to *H. longipes* Franchet which is chiefly distinguished by broader strigose or glabrescent leaves, strigose branchlets, longer petioles and white flowers. From all allied species *H. glabripes* differs in the leaves having a densely villous under side and at the same time a glabrous petiole and a glabrous or nearly glabrous midrib.

Hydrangea aspera D. Don, var. **velutina** Rehder, n. var.

Differt a typo foliis minoribus subtus densius velutino-hirtellis, floribus fertilibus sterilibusque coeruleis v. roseis minoribus, stylis plerumque 2. Folia oblongo-ovata v. ovato-lanceolata, fimbriato-denticulata, 8–12 cm. longa et 3–5 cm. lata; petioli 1–2 cm. longi; petala, stamina, styli coerulea; flores radiantes steriles 3 cm. diam., sepalis crenato-serratis.

Western Szech'uan: Wa-shan, thickets, alt. 1800–2400 m., July 1908 (Nos. **2405, 2403** (floribus omnibus sterilibus)); Mupin, thickets,

alt. 1200–1500 m., June 1908 (No. **2404**); Lungan Fu, thickets, alt. 1800–2700 m., August 1910 (No. **4482**).

This form is probably best treated as a variety of *H. aspera*, though it shows a close relation to *H. villosa;* it lacks, however the villous and fulvous hairs of that species. In No. 2404 and 4482 the pubescence is less velutinous and approaches that of *H. strigosa*.

Hydrangea aspera, var. **scabra** Rehder, n. var.

A typo recedit praecipue foliis ovatis v. ovato-oblongis, basi rotundata v. subcordata, supra manifeste scabra, subtus dense velutino-hirtellis, 12–18 cm. longis et 7.5–10 cm. latis. Capsula circa 3 mm. diam., stylis 2.

Western Szech'uan: southeast of Tachien-lu, thickets, alt. 2400 m., October 1910 (No. **4485**).

In the shape of the leaves this variety approaches somewhat *H. Rosthornii* Diels, but is easily distinguished by the nearly velutinous pubescence of the under side of the leaves and by the shorter petioles.

Hydrangea strigosa Rehder, n. sp.

H. aspera Hemsley in *Jour. Linn Soc.* XXIII. 272 (not D. Don) (1887).— Pampanini in *Nuov. Giorn. Bot. Ital.* n. ser. XVII. 283 (1910).
H. aspera, f. *typica* Diels in Bot. Jahrb. XXIX. 375 (1900).

Frutex 2–3 m. altus, ramulis junioribus teretibus v. leviter angulatis strigosis, vetustioribus griseo-brunneis lenticellis destitutis. Folia oblonga v. oblongo-lanceolata, acuminata, basi cuneata, denticulato-serrata serraturis porrectis parvis mucronulatis, 8–23 cm. longa et 2–6 cm. lata, supra sparse strigosa, subtus densius strigosa, praecipue ad venas; petioli 1.5–3 cm. longi, dense strigosi. Cyma convexa, radiis 5–7, dense strigosa; flores radiantes graciliter pedicellati, sepalis late ovalibus plerumque mucronulatis integris v. sparse serrulatis; flores fertiles albi; sepala triangularia, calycis dimidium tubum parce strigosum vix aequantia, glabra v. fere glabra; petala ovato-oblonga, 2 mm. longa; stamina longiora circa 6 mm. longa, breviora dimidio breviora; styli 2. Capsula hemispherica, truncata, 3 mm. alta, costata; semina late elliptica, utrinque subito in alam contracta, striata, 0.6 mm. longa, flavo-brunnea.

Western Hupeh: north and south of Ichang, thickets, alt. 500–1200 m., August and December 1907 (No. **765**, type): Hsing-shan Hsien, thickets, alt. 900–1500 m., August and December 1907 (Nos. **773**, **2394**); Patung Hsien, thickets, alt. 1200–1500 m., August 1907 (Nos. **2392**, **2395**); Fang Hsien, thickets, alt. 1200–1800 m., August 1907 (No. **2390**, with all the flowers sterile); Packang, 1901 (Veitch

Exped. No. 1473); South Wushan, 1901 (Veitch Exped. No. 2446); without locality, 1901 (Veitch Exped. No. 2527); *A. Henry* (No. 1083). Western Szech'uan: Mt. Omei, 1904 (Veitch Exped. No. 4902 with all the flowers sterile); Nanch'uan, Shan-tzu-p'ing, *A. von Rosthorn* (No. 299).

Closely related to *H. aspera* D. Don which chiefly differs in the fimbriate-denticulate leaves being on the under side on the veins and veinlets covered with a villose-hirtellous, not appressed strigose pubescence and in the larger capsules with usually three styles. The difference in pubescence and serration, serrulate, with the teeth pointing forward in *H. strigosa*, and denticulate or dentate with spreading teeth in *H. aspera*, seems to distinguish clearly the Chinese from the Himalayan plant of which I have seen Wallich's No. 440 B; the pubescence of that specimen agrees well with Don's original description "foliis . . . subtus dense cano-tomentosis" and Clarke's description "under surface with gray woolly hairs," terms which hardly could be applied to the strigose pubescence of the Chinese plant. In size and shape of foliage the Chinese plant seems exceedingly variable, and the following forms pass gradually into each other.

Hydrangea strigosa, var. **macrophylla** Rehder, n. comb.

H. aspera, var. *macrophylla* Hemsley in *Jour. Linn. Soc.* XXIII. 273 (1887). — Diels in *Bot. Jahrb.* XXIX. 375 (1900).

Western Hupeh: *A. Henry* (Nos. 2083, 6477); Fang Hsien, thickets, alt. 1300 m., August 1907 (No. **571**); Hsing-shan Hsien, thicket, alt. 900–1200 m., August and December 1907 (No. **757**). Western Szech'uan: Mt. Omei, July 1904 (Veitch Exped. No. 4902); Nanch'uan, Chang-kou, September 18, 1891, *A. von Rosthorn* (No. 953).

The leaves of this form are sometimes 28 cm. in length and 11 cm. in width and are generally ovate-lanceolate or sometimes ovate-oblong and nearly rounded at the base. This form passes gradually into the type, and some specimens enumerated under the type, as Wilson's Nos. 2394 and also No. 773 and Henry's No. 1083, with leaves 22 cm. long and 6.5 cm. broad, might perhaps be referred to var. *macrophylla*, but the leaves are comparatively narrow and cuneate at the base.

Hydrangea strigosa, var. **sinica** Rehder, n. comb.

H. aspera, var. ϵ *sinica* Diels in *Bot. Jahrb.* XXIX. 375 (1900).

Western Hupeh: *A. Henry* (No. 185); Nan-t'o, *A. Henry* (No. 2206). Western Szech'uan: Nanch'uan, Ma-fou-lin-p'o, August 26, 1901, *A. von Rosthorn* (No. 629).

Differs in its oblanceolate or oblong-obovate leaves rarely exceeding 10 cm. in length, the leaves having generally their greatest width above the middle, not below as in the other forms.

Hydrangea strigosa, var. **angustifolia** Rehder, n. comb.

H. aspera var. ζ *angustifolia* Diels l. c.

Western Szech'uan: Wang-t'ien-ling, August 9, 1891, *A. von Rosthorn* (No. 1168, type). Hupeh: Changyang Hsien, thickets, alt. 30–60 m., September 1907 (Nos. **2393, 2396**).

Wilson's No. 2396 with the leaves 23 cm. long and 3.7 cm. broad approaches var. *macrophylla*, but on account of the narrowness of the leaves it finds its place perhaps better here.

Hydrangea Rosthornii Diels in *Bot. Jahrb.* XXIX. 374 (1900).

Western Szech'uan: Nanchuan, Ya-chih-pa, August 1891, *A. von Rosthorn* (No. 471, type); Wa-shan, thickets, alt. 1500–2400 m., July, September and November 1908 (Nos. **1156, 1348, 1372, 2414**); Ta-chien-lu, thickets, alt. 1800–2500 m., July and October 1908 (No. **1365**), October 1910 (No. **4337**); Mupin, thickets, alt. 2400 m., October 1910 (No. **4341**); Mt. Omei, July 1904 (Veitch Exped. No. 4903).

The close relationship of this species with *H. robusta* Hooker f. & Thomson is still more evident in Wilson's specimens than in the type specimen; the leaves of Wilson's specimens are larger, the largest measuring 25 cm. in length and 17 cm. in width, the longest petiole is 20 cm. long and in some specimens the sterile flowers have strongly toothed sepals. It is also closely related to *H. longipes* Franchet, which is chiefly distinguished by its smaller and thinner, coarsely serrate leaves, less densely strigose or glabrescent beneath.

Hydrangea longipes Franchet in *Nouv. Arch. Mus. Paris*, sér. 2, VIII. 228 (*Pl. David.* II. 45) (1885).

Hydrangea (§ *Calyptranthe*) *longipes* Hemsley in *Jour. Linn. Soc.* XXIII. 273 (1887).

Hydrangea aspera, var. α *longipes* Diels in *Bot. Jahrb.* XXIX. 374 (1900).

Hydrangea (*Calyptranthe*) *Hemsleyana* Diels *l. c.* 376 (1900). — Pampanini in *Nuov. Giorn. Bot. Ital.* n. ser. XVII. 284 (1910).

Western Szech'uan: Mupin, June 1869, *P. David*; Mupin, thickets, alt. 1800 m., July 1908 (No. **2406**); alt. 1500–2100 m., October 1910 (No. **4342**); Wa-ssu country, Wên-chuan Hsien, thickets, alt. 1100–2100 m., July 1908 (No. **2400**); Hsing-shan Hsien, thickets, alt. 1200–1800 m., July 1808 (No. **2401**); Wa-shan, thickets, 1800–2400 m., July 1908 (No. **2413**); northeast of Sungpan, thickets, alt. 1800–2200 m., October 1910 (No. **4330**); Lungan Fu, alt. 1800–2400 m., August 1910 (No. **4481**); Nanch'uan, *A. von Rosthorn* (No. 1931). Western Hupeh: Chang-lo Hsien, cliffs and thickets, alt. 1300–1500 m., July 1907 (No. **2402**); north and south of Ichang, thickets and rocky places, alt. 1200–1800 m., June and November 1907 (No. **580**); Patung, May 1901 (Veitch Exped. No. 1213); without locality, August 1901 (Veitch Exped. No. 2514); *A. Henry* (Nos. 5839 A, 5839 B).

Hydrangea longipes is closely related to *H. Giraldii* Diels and also to *H. robusta* Hooker f. & Thomson as Franchet has already stated, and some of the specimens, as Wilson's No. 580, which has rather densely pubescent and large leaves, seem somewhat intermediate. *Hydrangea longipes* Franchet and *H. longipes* Hemsley are identical; the apparent discrepancies in the descriptions do not exist in reality. First it is to be stated that *H. longipes* Hemsley does not belong in the section *Calyptranthe* where Hemsley placed it, apparently misled by the fact that the petals occasionally cohere at the apex, but this may happen in almost all species of the subsection *Asperae*, which does not differ in the structure of its flowers from *Calyptranthe*. The description of Franchet contains some misleading inaccuracies; the flowers have 10 stamens and 2 styles, not 5 stamens and 3 styles as Franchet describes them, and the leaves of at least part of the specimens collected by David attain a length of four inches, while Franchet says "folia vix ultra-pollicaria." The only difference I can find between Franchet's and Hemsley's specimens is the somewhat slighter pubescence of the latter, the leaves being sometimes nearly glabrous. A form based on No. 846 of C. Silvestri from the mountains of Chia-yuen-kou, western Hupeh, with the radiant flowers smaller and greenish has been described by Pampanini as *H. Hemsleyana*, var. *Pavoliniana* (*Nuov. Giorn. Bot. Ital.* n. ser. XVII. 284 [1910]).

Hydrangea anomala D. Don, *Prodr. Fl. Nepal.* 211 (1825).

Hydrangea altissima Wallich, *Tent. Fl. Nepal.* t. 50 (1826).
Hydrangea glabra, Hayata in *Jour. Coll. Sci. Tokyo*, XXV. 89, t. 6 (*Fl. Mont. Formos.*) (1908).

Western Hupeh: north and south of Ichang, common, alt. 1200–1800 m., May and October 1907 (No. **491**, in part); Packang, July 1901 (Veitch Exped. No. 894); *A. Henry* (No. 6511). Western Szech'uan: Wa-shan, woodlands, alt. 1800–2500 m., June and October 1908 (No. **491**, in part); Mt. Omei, July 1904 (Veitch Exped. No. 4901); Nanch'uan, Yang-yii-ping, *A. von Rosthorn* (No. 51); South Wushan, *A. Henry* (Nos. 5557, 5658). Formosa: Mt. Morrison, *T. Kawakami & U. Mori* (No. 1723 ex Hayata).

I have been unable to detect in Hayata's description and plate any character by which to distinguish his *H. glabra* from *H. anomala*.

SYNOPSIS OF THE CHINESE SPECIES OF HYDRANGEA.

As the determination of the copious material collected by Wilson of this genus has necessitated a study of all the Hydrangeas of China and the adjacent parts of Asia, it may be useful to place the results of this study permanently on record in the shape of a synopsis of all the Chinese species of Hydrangea.

KEY TO THE SPECIES.

* **Semina exalata v. utrinque in alam protracta; petala apice soluta, patentia; frutices erecti raro scandentes ramulis annotinis medulla alba solida ampla.**

Sect. I. **EUHYDRANGEA.**

† Ovarium semisuperum; capsula ovoidea apice in stylos plerumque 3 attenuata; stamina petala vix v. paullo superantia, subaequalia.

‡ Semina exalata v. alis brevissimis instructa; cyma plana, rarius convexa; petala plerumque tarde decidua, sub anthesi reflexa.

Subsect. 1. PETALANTHAE.

Cyma basi foliis suffulta; pars libera capsulae tubo calycis longior; folia denticulata v. denticulata-serrata.

Cyma umbellam sessilem formans (rarius ramulis oppositis remotis simulque foliis glabris); capsula ovoidea longior quam lata; petala obovata.

Folia glabra, subtus viridia, chartacea v. coriacea; flores radiantes pauci v. deficientes . . . . . 1. *H. chinensis.*

Folia subtus glaucescentia sparse ad venas densius pubescentia; cyma manifeste umbelliformis . . . . . 2. *H. umbellata.*

Cyma e ramulis oppositis plus minus remotis composita; folia ad venas saltem pubescentia; flores fertiles coerulei; petala oblongo-obovata v. lanceolata.

Sepala anguste lanceolata; petala lanceolata; styli recti v. leviter apice curvati; capsula subglobosa, absque styli latior quam longa . . . . . 3. *H. Davidii.*

Sepala triangulari-ovata; petala obovato-oblonga; styli apice revoluti; folia plerumque oblanceolato-oblonga; capsula ovoidea, absque stylis paullo longior quam lata . . . . . 4. *H. yunnanensis.*

Cyma pedunculata aphylla; pars libera capsulae tubo calycis brevior, rarius aequilonga; folia argute serrata; flores fertiles coerulei v. rosei.

Folia utrinque et ramuli strigillosa pilis basi bulbosis; flores radiantes disepali pauci . . . . . 5. *H. Moellendorfii.*

Folia utrinque glabra v. supra sparse pilosa et subtus secus venas villosa; ramuli glabri; flores radiantes quadrisepali.

6. *H. opuloides.*

‡‡ Semina utrinque in alam protracta; flores fertiles albi; cyma corymbiformis et convexa v. paniculiformis; petala cito decidua.

Subsect. 2. HETEROMALLAE.

Inflorescentia manifeste paniculata; folia subtus ad venas tantum pubescentia v. glabrescentia . . . . . 7. *H. paniculata.*

Inflorescentia cymosa plerumque convexa.

Folia subtus glabrescentia, ad venas tantum v. interdum ad venulas sparse pubescentia.

Folia subtus glauca, sub lente dense papillosa, ad venas pilis sericeis dense obtecta, basi rotundata . . . . . 8. *H. hypoglauca.*

Folia subtus pallide viridia sine papillis, ad venas strigosa, basi plus minus attenuata . . . . . 9. *H. xanthoneura.*

Folia subtus tota facie pubescentia.

Folia subtus pubescentia tantum.

Folia subtus ad costam mediam venasque dense pilis flavidis adpressis obtecta, ceterum laxe villoso-strigosa, elliptica, grossius serrata . . . . . 10. *H. pubinervis.*

Folia subtus cinereo-villosa, plerumque ovato-oblonga, denticulato-serrulata . . . . . 11. *H. Bretschneideri.*

Folia subtus dense albo-tomentosa, denticulato-serrulata.

12. *H. mandarinorum.*

†† Ovarium totum inferum; capsula hemispherica v. turbinata stylis plerumque duobus. . . . . Subsect. 3. ASPERAE.

‡ Ramuli petiolique et saepe costa subtus pilis longis patentibus instructa v. tomentosa.

Pubes ramulorum petiolorum costarum subtus trichomatibus carnosis, aculeiformibus apice fissis plerumque purpureis crebris interspersa; folia ad 25 cm. longa, basi plerumque rotundata v. subcordata.
13. *H. Sargentiana.*

Pubes tantum pilosa v. tomentosa.
Capsula et sepala utrinque tomentosula; folia oblongo-lanceolata, ad 20 cm. longa, supra scabra, subtus ad costas tomentosa.
14. *H. longifolia.*

Capsula sepalaque glabra.
Frutex scandens; folia oblongo-ovata, utrinque subtus densius scabro-pilosa . . . . . 15. *H. Kawakamii.*
Frutices erecti.
Folia basi cuneata, denticulato-serrulata, subtus dense cinereo-villosa; petioli foliorum superiorum 1.5–3 cm. longi
16. *H. villosa.*

Folia basi rotundata v. subcordata, serrata, subtus hirto-villosa, petioli pilis fulvis instructi omnes 3–6 cm. longi.
17. *H. fulvescens.*

‡‡ Ramuli petiolique strigosi v. glabri.
Folia serrata v. denticulata; frutices erecti.
Folia subtus hirto-villosa.
Ramuli petiolique glabra; folia anguste lanceolata, serrulata, 2–3 cm. lata . . . . . 18. *H. glabripes.*
Ramuli petiolique dense strigosa; folia oblongo-lanceolata v. lanceolata, rarius ovato-oblonga v. ovata, fimbriato-denticulata, 4–12 cm. lata. . . . . 19. *H. aspera.*
Folia subtus strigosa v. glabrescentia, denticulato-serrulata v. serrata.
Folia basi cuneata; petioli 1.5–3 cm. longi, rarius longiores, serraturis porrectis . . . . . 20. *H. strigosa.*
Folia basi rotundata v. subcordata, rarius late cuneata, petioli 4–20 cm. longi.
Folia denticulato-serrulata et saepe duplicato-denticulata serraturis setoso-mucronulatis, ad 25 cm. longa, subtus dense strigosa, subchartacea . . . . . 21. *H. Rosthornii.*
Folia serrata, serraturis late triangularibus, breviter acuminatis, 6–18 cm. longa, subtus strigosa v. glabrescentia, membranacea.
22. *H. longipes.*

Folia integra; flores steriles sepalis plerumque 2; frutices scandentes.
Folia ovata v. elliptica, basi rotundata . . . . . 23. *H. integrifolia.*
Folia oblongo-elliptica, basi attenuata . . . . . 24. *H. integra.*

** Semina undique ala angusta cincta, compressa, laevia; petala apice coherentia calyptratim decidua; frutices radicibus scandentes ramulis medulla brunnea angustiore evanescente ideoque subfistulosis.

Sect. II. CALYPTRANTHE.

Stamina 10; folia ovata v. elliptica basi cuneata v. rotundata, denticulato-serrata. . . . . 25. *H. anomala.*
Stamina 15; folia late ovata, basi truncata v. subcordata, argute serrata.
26. *H. petiolaris.*

ENUMERATION OF THE SPECIES.

Sect. I. **EUHYDRANGEA** Maximowicz in *Mém. Acad. Sci. St. Pétersbourg*, sér. 7, X. No. XVI. 7 (1867).

Subsect. 1. PETALANTHAE Maximowicz, *l. c.*

This subsection is taken here in a wider sense than in its original conception and includes all the species with a wingless or nearly wingless seed. The ovary is partly superior with 3–4 styles and the cymes are usually flat; the petals are spreading or reflexed and usually persistent during anthesis. Petioles 1–3, rarely 5 cm. long.

1. **Hydrangea chinensis** Maximowicz, *l. c.* (1867) — Hemsley in *Jour. Linn. Soc.* XXIII. 273 (1887).

Fokien: April–June 1905, *S. T. Dunn* (No. 2664). Formosa: Tamsuy, 1864, *R. Oldham*; Bankinsing, *A. Henry* (Nos. 98, 590, 1716).

2. **Hydrangea umbellata** Rehder. See p. 25.

3. **Hydrangea Davidii** Franch. See p. 25.

4. **Hydrangea yunnanensis** Rehder, n. sp.

Frutex metralis v. ultra ramulis hornotinis dense strigilloso-villosulis, annotinis flavescentibus. Folia membranacea, oblonga v. oblongo-lanceolata, acuminata, basi cuneata, dentata v. denticulata basi excepta, 7–12 cm. longa et 2.5–4 cm. lata, supra luteo-viridia, sparse setulosa v. glabrescentia, ad costam dense strigilloso-villosa, subtus pallida, costa venisque setulosis exceptis glabrescentia v. interdum parce setulosa, utrinsecus 10–14-costata; petioli crispulo-villosi, circa 1 cm. longi. Cyma fere plana v. convexa, radiis 5–7 oppositis remotis composita, strigiloso-villosa; flores steriles 3–4 cm. diam., sepalis 3–4, late ovatis albis plerumque paucidentatis v. denticulatis; flores fertiles cyanei pedicellis plerumque receptaculo brevioribus; calycis dentes triangulari-ovati; petala obovato-oblonga, staminibus longioribus subaequilonga, circa 3 mm. longa; styli 3. Capsula ovoidea stylis persistentibus inclusis 4–5 mm. longa, pars libera fere duplo longior quam tubus calycis; styli apice valde recurvati stigmatibus fere circulum formantes; semina late elliptica, exalata.

Yunnan: Mengtze, mountain forests to the north, alt. 2100 m., *A. Henry* (Nos. 10236, 10236 B).

Closely related to *H. Davidii* Franch. which is easily distinguished by its linear-lanceolate sepals, lanceolate petals, longer and slenderer pedicels, suborbicular capsules and straight styles only slightly curved at the apex.

5. **Hydrangea Moellendorfii** Hance in *Jour. Bot.* XII. 177 (1874).

Kiangsi: near Kiukiang (ex Hance).

I have seen no specimen of this species, but as Hance states that it is closely related to *H. hirta* I assume that the inflorescence is peduncled and leafless as in that species.

6. **Hydrangea opuloides** K. Koch, *Dendr.* I. 353 (1869).

Hydrangea japonica Siebold in *Nov. Act. Acad. Leop.-Carol.* XIV. pt. ii. 689 (*Syn. Hydrang.*) (1829).

Hydrangea opuloides, var. **Hortensia** Dippel, *Handb. Laubholzk.* III. 322 (1893).

Hortensia opuloides Lamarck, *Encycl.* III. 136 (1789). — Jacquin, *Fragm. Bot.* 7, t. 3 (1800).

Hortensia japonica Gmelin, *Syst.* II. 722 (1791). — Zorn, *Auswahl Schön. Gew.* III. 58, t. 149 (1796).

Hydrangea hortensis Smith, *Icon. Pict.* t. 12 (1792). — Sims in *Bot. Mag.* XIII. t. 438 (1799). — Savi, *Fl. Ital.* III. 65, t. 110 (1824).

Hortensia mutabilis Schneevoogt, *Icon. Pl. Rar.* 36 t. (1793).
Hortensia speciosa Targioni-Tozzetti in *Ann. Imp. Mus. Firenze*, I. Obs. Bot. 36, t. 2 (1808).
Hydrangea Hortensia Siebold in *Nov. Act. Acad. Leop.-Carol.* XIV. pt. ii, 688 (*Sym. Hydrang.*) (1829).
Hydrangea japonica, γ *Hortensia* Regel in *Gartenfl.* XV. 290 (1866).
Hydrangea Hortensia, ε *Hortensia* Maximowicz in *Mém. Acad. Sci. St. Pétersbourg*, sér. 7, X. No. XVI. 14 (1867).
Hydrangea hortensis, var. *Hortensia* Rehder in Bailey *Cycl. Am. Hort.* II. 785 (1900).

Hupeh: *A. Henry* (No. 7385 with all the flowers sterile). Szech'uan: Nan-ch'uan, August 24, 1891, *A. von Rosthorn* (No. 602 with all the flowers sterile); Shi-tsu-kou, July 27, 1891, *A. von Rosthorn* (No. 75, without flowers).

No. 7385 of Henry and No. 602 of Rosthorn represent the form with all the flowers sterile, like the well-known garden forms. As long as the form with fertile flowers has not been collected in a wild state in western China, its spontaneous occurrence must remain doubtful. So far no European collector has ever seen and collected it wild in these regions and the notes of the native collector who gathered the plants for A. von Rosthorn must be taken with some caution.

Subsect. 2. HETEROMALLAE Rehder, n. subsect.

Piptopetalae Maximowicz in *Mém. Acad. Sci. St. Pétersbourg*, sér. 7, X. No. XVI. 8 (in part) (1867).

This subsection is chiefly characterized by the partly superior ovary with 3–4 styles and by the seeds with a wing on each end. The inflorescence is strongly convex with remote ramifications and sometimes paniculiform; the fertile flowers are white in the Chinese species and the petals drop before the opening of the anthers. The petioles do not exceed 5 cm. in length.

7. **Hydrangea paniculata** Siebold. See p. 25.
8. **Hydrangea hypoglauca** Rehder. See p. 26.
9. **Hydrangea xanthoneura** Diels. See p. 26.
10. **Hydrangea pubinervis** Rehder. See p. 27.
11. **Hydrangea Bretschneideri** Dippel, *Handb. Laubholzk.* III. 320 (1893). — Rehder in *Mitt. Deutsch. Dendr. Ges.* XII. 121 (1903). — Schneider, *Ill. Handb. Laubholzk.* I. 390, fig. 250 h-l, 251 a-b (1905).

Hydrangea pubescens? Maximowicz in *Mém. Acad. Sci. St. Pétersbourg*, IX. 472 (*Ind. Fl. Pekin.*) (nom. nudum, not Decaisne) (1859). — Koehne, *Deutsch. Dendr.* 189 (1893).
Hydrangea vestita, var. *pubescens* Maximowicz in *Mém. Acad. Sci. St. Pétersbourg*, X. No. XVI. 10 (excl. synon. Decaisne) (1867). — Sargent in *Gard. and For.* III. 17, fig. 3 (1890).
Hydrangea aspera Zabel in *Gartenfl.* XXXVIII. 461 (not Don) (1889).
Hydrangea pekinensis Hort., synon. ex Dippel, *l. c.*
Hydrangea vestita Hort., synon. ex Dippel, *l. c.*

Chili: near Pekin (ex Maximowicz). In cultivation; originally raised from seed collected by Dr. Bretschneider near Pekin and sent to the Arnold Arboretum (Koehne, Herb. Dendr. No. 4070).

I do not see any reason to doubt the identity of Bretschneider's plant with the *H. vestita*, var. *pubescens* Maximowicz; the description of the latter agrees exactly with the form cultivated in the Arnold Arboretum which shows a much denser pubescence than Koehne's No. 4070. The true *H. heteromalla* Don (*H. vestita* Wallich) is easily distinguished by the dense white tomentum of the under side of the leaves and their fimbriately denticulate margin.

Hydrangea Bretschneideri, var. **lancifolia** Rehder. See p. 28.

Hydrangea Bretschneideri, var. **Giraldii** Rehder, n. var.

Hydrangea Giraldii Diels in *Bot. Jahrb.* XXIX. 373 (1900).

I am not able to separate *H. Giraldii* specifically from *H. Bretschneideri;* it seems to differ only in narrower leaves gradually narrowed into the petiole and in the paler color of the bark. In the shape of the leaves it resembles *H. xanthoneura*, var. *Wilsonii* Rehd. which is easily distinguished by the leaves being glabrous or nearly so beneath.

Northern Shensi: T'ai-pa-shan, December 1893, *G. Giraldi* (No. 1169! No. 1172 ex Diels); Huan-tou-shan, Ki-shan, *G. Giraldi* (No. 1167, 1171 ex Diels); Tue-lian-pin, *G. Giraldi* (No. 1168).

12. **Hydrangea mandarinorum** Diels in *Bot. Jahrb.* XXIX. 372 (1900).

Szech'uan: Nanch'uan, *A. von Rosthorn* (No. 1932 in Herb. Christiania).

Diels places this species in the section *Petalanthae*, but it does not differ in the structure of its flowers from *H. heteromalla* Don and its allies.

Subsect. 3. ASPERAE Rehder, n. subsect.

Piptopetalae Maximowicz in *Mém. Acad. Sci. St. Pétersbourg*, X. No. XVI. 8 (in part) (1867).

This subsection is chiefly characterized by the inferior ovary developing into a hemispheric or turbinate capsule truncate at the apex. The seeds have a wing on each end; the styles are usually 2; the petals fall off before the stamens are fully developed, sometimes as a whole by cohering at the apex. The petioles sometimes attain 20 cm. in length.

13. **Hydrangea Sargentiana** Rehder. See p. 29.

14. **Hydrangea longifolia** Hayata in *Jour. Coll. Sci. Tokyo*, XXV. 91 (*Fl. Mont. Formos.*) (1908).

Formosa: Taitou, Torokusha, *T. Kawakami & G. Nakahara* (No. 690, ex Hayata).

15. **Hydrangea Kawakamii** Hayata, *l. c.* 90, t. 8 (1908).

Formosa: Mt. Morrison, alt. 2300 m., *T. Kawakami & U. Mori* (No. 1875, ex Hayata).

16. **Hydrangea villosa** Rehder. See p. 29.

Hydrangea villosa, var. **strigosior** Rehder, n. comb.

Hydrangea aspera, var. *strigosior* Diels in *Bot. Jahrb.* XXIX. 375 (1900).

Szech'uan: Tsaku-lao, Wei-kuan, August 20, 1891, *A. von Rosthorn* (No. 2546). Hupeh: *A. Henry* (No. 2473); August 1901, *E. H. Wilson* (Veitch Exped. No. 1473[a], with sterile flowers).

Differs from the type by its less villous tomentum. Branchlets usually only appressed strigose with fulvous hairs at the nodes; petioles hirsute with fulvous hairs interspersed; leaves hirsute-villose beneath, the hairs on the veins scarcely longer and not fulvous.

17. **Hydrangea fulvescens** Rehder, n. sp.

Frutex circa 1 m. altus ramulis junioribus parce strigosis pilis patentibus rufescentibus intermixtis, vetustioribus griseo-brunneis peridermate solubili. Folia membranacea, ovata v. ovato-oblonga, acuminata, basi rotundata v. subcordata, irregulariter serrata serraturis triangularibus acuminatis plerumque curvatis, 9–13 cm. longa et 4.5–8.5 cm. lata, supra flavo-viridia, strigosa, in costa venisque densius strigosa, subtus pallidiora dense hirtello-strigosa in costa media venisque pilis longis hirtis fulvis praedita, utrinsecus 7–9-costata; petioli graciles, pilis hirtis et interdum strigosis obsiti, 3–9 cm. longi. Cyma plerumque 5-radiata, laxa, strigosa pilis patentibus fulvis interspersis; flores radiantes albi sepalis 4

orbiculato-obovatis integris leviter emarginatis; flores fertiles coerulescentes; calycis dentes triangulares, vix tubum dimidium aequantes; petala oblongo-ovata, circa 2 mm. longa; stamina longiora 6–7 mm. longa, brevioribus duplo longiora; styli 2; ovarium inferum. Capsulae maturae desiderantur.

Szech'uan: Wushan, July 1900, *E. H. Wilson* (Veitch Exped. No. 1393, type). Hupeh: *A. Henry* (No. 5949).

Closely allied to *H. longipes* Franchet, which differs in its tomentum consisting only of strigose hairs and in its white fertile flowers.

18. **Hydrangea glabripes** Rehder. See p. 30.

19. **Hydrangea aspera** D. Don, *Prodr. Fl. Nepal.* 211 (1824). — Clarke in Hooker f., *Fl. Brit. Ind.* II. 404 (1878).

Hydrangea vestita Wallich, *Tent. Fl. Nepal.* t. 49, fig. 5–8 (in part, excl. fig. 1–4 and flowering branch) (1826).

Hydrangea vestita Wallich, var. *fimbriata* Wallich, *Cat.* No. 440 B. (nomen nudum) (1828). — De Candolle, *Prodr.* IV. 14 (1830).

—Yunnan: Mengtze, alt. 1800 m., *A. Henry* (No. 9208).

This is the only Chinese specimen I have seen which I can refer to the typical *H. aspera.* The capsules, however, are smaller than in the type and have partly 2 and partly 3 styles. The variety described by Pampanini as *H. aspera,* var. *cordata* (in *Nuov. Giorn. Bot. Ital.* n. ser. XVII. 283, [1910]), based on Nos. 835, 835ª of C. Silvestri from Ou-tan-shan, western Hupeh, probably does not belong to *H. aspera* nor to *H. strigosa,* but as I have seen no specimens and the description given is too brief, I am not able to place it.

Hydrangea aspera, var. **velutina** Rehder. See p. 30.

Hydrangea aspera, var. **scabra** Rehder. See p. 31.

20. **Hydrangea strigosa** Rehder. See p. 31.

21. **Hydrangea Rosthornii** Diels. See p. 33.

22. **Hydrangea longipes** Franchet. See p. 33.

Hydrangea longipes, var. **lanceolata** Hemsley in *Jour. Linn. Soc.* XXIII. 274 (1887).

Hupeh: Ichang, *A. Henry* (No. 1786, type). Szech'uan: Changyang, June 1900, *E. H. Wilson* (Veitch Exped. No. 1150).

23. **Hydrangea integrifolia** Hayata in *Jour. Coll. Sci. Tokyo,* XXII. 131 (*Enum. Pl. Formos.*) (1906).

Formosa: on rocks, Taitou, *U. Faurie* (No. 105 ex Hayata).

24. **Hydrangea integra** Hayata in *Jour. Coll. Sci. Tokyo,* XXV. 90, t. 7 (*Fl. Mont. Formos.*) (1908).

Formosa: Mt. Morrison, *T. Kawikami & U. Mori* (No. 1723 ex Hayata).

Sect. II. **CALYPTRANTHE** Maximowicz in *Mém. Acad. Sci. St. Pétersbourg,* X. No. XVI. 16 (1867).

This section is well characterized by the compressed seeds having a narrow wing all around, by the climbing habit, the branchlets affixing themselves by means of rootlets, by the brown partly evanescent pith of the one year old branchlets and by the petals being thrown off as a whole by the extending stamens. The falling off as a whole of the petals occurs also occasionally in the section *Asperae,* which hardly differs from *Calyptranthe* in the structure of the flowers and also contains a few climbing species.

25. **Hydrangea anomala** D. Don. See p. 34.

26. **Hydrangea petiolaris** Siebold & Zuccarini, *Fl. Jap.* I. 106, t. 54 (1835). — Schneider, *Ill. Handb. Laubholzk.* I. 393, fig. 252 a–i (1905).

Hydrangea cordifolia Siebold & Zuccarini, *l. c.* 113, t. 59, fig. 2 (1835).

Hydrangea bracteata Siebold & Zuccarini, *l. c.* 176, t. 92 (1835).

Hydrangea scandens Maximowicz in *Mém. Acad. Sci. St. Pétersbourg*, sér. 7, X. No. XVI. 16 (1867).

Hydrangea tiliaefolia Léveillé in Fedde, *Rep. Nov. Sp.* VIII. 282 (1910).

Korea: Quelpaert, *U. Faurie* (Nos. 358, 1654), *T. Taquet* (Nos. 809, 2884).

Faurie's Nos. 358 and 1654 and Taquet's No. 809 are the type numbers of Léveillé's *H. tiliaefolia*, which is undistinguishable from *H. petiolaris*.

The following three Chinese species from Kwei-chau recently described by Léveillé I am not able to place, as I have seen no specimens, and the descriptions are too incomplete for recognition.

Hydrangea Maximowiczii Léveillé in *Bull. Acad. Intern. Geog. Bot.* XII. 114 (1903).

Hydrangea Kamienskii Léveillé, *l. c.* 115.

Hydrangea Arbostiana Léveillé, *l. c.* 115.

The first resembles in its short stamens *H. Lobbii* Maximowicz, but differs in its tomentose pubescence, the second is closely related apparently to *H. heteromalla* Don, but has lanceolate petals, while the third may belong either to the *Petalanthae* or to the *Heteromallae*, the description of the seeds as "imperfecte oblonga" may mean that they are winged or wingless.

SCHIZOPHRAGMA Sieb. & Zucc.

Determined by Alfred Rehder.

Schizophragma integrifolium Oliver in *Hooker's Icon.* XX. t. 1934 (1890).

Schizophragma hydrangeoides, var. *integrifolium* Franchet in *Nouv. Arch. Mus. Paris*, sér. 2, VIII. 266 (1885); *Pl. David.* II. 44 (1888.)

Schizophragma Fauriei Hayata in *Jour. Coll. Sci. Tokyo*, XXII. 131. (*Enum. Pl. Formos.*) (1906.)

Western Szech'uan: Mupin (type locality), rocky places, cliffs, alt. 1600–1800 m., July and October 1908 (No. **1068**), Nov., 1908 (No. **1251**, fruiting specimen), alt. 1800–2300 m., October 1910 (No. **4339**); Wa-shan, rocky places, alt. 1200–1800 m., August, 1908 (No. **1194**); Wa-ssu country, Wên-chuan Hsien, rocky places, alt. 1200–2100 m., Aug., 1908 (No. **2568**); without locality, cliffs, alt. 1400 m., June 1903 (Veitch Exped. No. 3562). Formosa: Mt. Taitou, *U. Faurie* (**No. 104, ex Hayata**).

A very variable species; the typical form which is represented by the plant of western Szech'uan is characterized by large and broad leaves, generally ovate, and subcordate at the base, of firm, sometimes subcoriaceous texture, entire or only sparingly denticulate near the apex, glabrous and green beneath and more or less reticulate. All the specimens quoted above belong to this form except Faurie's No. 104 from Formosa, which I have not seen; it may represent a form differen

from any of the following four varieties. No. 4339 has the petioles and the leaves slightly pubescent beneath, and may be considered a transition to the following variety.

Schizophragma integrifolium, var. **molle** Rehder, n. var.

Differt a typo foliis subtus dense et molliter pubescentibus petiolis 1.5–6 cm. longis, villosis cyma laxe pubescente. Sepala florum sterilium ovata, basi rotundata, acutiuscula, 5–8 cm. longa, 3–5 cm. lata.

Western Szech'uan: Wa-shan, cliffs, alt. 1600–1800 m., July 1908 (No. **1251**, in part, flowering specimen only); Mupin, cliffs, alt. 1800 m., July 1908 (No. **1251**, in part, flowering specimen).

Strikingly different from the type in the dense and soft tomentum of the under side of the leaves, which otherwise in texture, size and shape resemble closely those of the typical form.

Schizophragma integrifolium, var. **denticulatum** Rehder, n. var.

Differt a typo foliis membranaceis vel fere chartaceis, ovato-oblongis vel ovatis, basi rotundatis, acuminatis, minuto-dentatis vel denticulatis basi excepta, 10–15 cm. longis et 5.5–9 cm. latis, concoloribus, subtus ad venas laxe et ad venulas sparse pilosis, petiolis glabrescentibus, 3–7 cm. longis. Sepala florum sterilium ovato-oblonga basi late cuneata, 4–6 (–8) cm. longa et 2–3 (–4) cm. lata.

Western Hupeh: Chang-lo Hsien, rocky places, alt. 1200 m., June 1907 (No. **2563**); Hsing-shan Hsien, cliffs, rocky places, alt. 1200–1800 m., November, July and August 1907 (Nos. **572**, **2566**, **2567**); Changyang Hsien, rocks, sunny places, alt. 900–1200 m., April and July 1907 (No. **2564**); South Wushan, cliffs, alt. 1200 m., July and September 1907 (No. **2565**); Fang Hsien, cliffs, alt. 1800–2100 m., October 1910 (No. **4462**); without locality, June 1900 (Veitch Exped. No. 1065), July 1900 (Veitch Exped. No. 1320); Patung, July 1901 (Veitch Exped. No. 1158). Kiangsi: Kuling, common among rocks, alt. 900 m., August 1907 (No. **1727**).

Differs from the type in its thinner, dentate or denticulate leaves, slightly pubescent on the veins beneath or sometimes glabrous. In the No. 2563 which I consider the type of this variety and also in No. 4462 the leaves are sinuately dentate, while in all the others they are merely denticulate.

Schizophragma integrifolium, var. **glaucescens** Rehder, n. var.

A typo recedit foliis chartaceis, ovatis v. oblongo-ovatis, basi rotundatis v. late cuneatis, integris, 8–12 cm. longis et 3.5–7 cm. latis, supra laete viridibus, subtus glaucescentibus glabris sed in axillis barbatis; sepalis florum sterilium oblongis acutiusculis, basi cuneatis, 3.5–5 cm. longis et 1–2 cm. latis.

Western Szech'uan: Wa-shan, cliffs, alt. 1200–1800 m., July 1908 (No. 2569).

Differs from the type in its thinner and smaller leaves glaucescent beneath, sometimes nearly oblong in outline and in its smaller sterile flowers.

To complete the enumeration of the Chinese Schizophragmas, the following varieties and species which are not represented in the recent Wilson collection are appended here.

Schizophragma integrifolium, var. minus Rehder, n. var.

A typo recedit foliis membranaceis, ovatis, v. subcordatis, integris v. fere integris, minoribus, tantum 8–10 cm. longis et 5.5–6.5 cm. latis, supra flavo-viridibus, subtus pallidioribus, sepalis florum sterilium oblongo-ovatis, acutiusculis, basi cuneatis, 3–3.5 cm. longis et 1–1.5 latis.

Hupeh: *A. Henry* (No. 5965, type); South Washan, wet place, June 1900, *E. H. Wilson* (Veitch Exped. No. 1065).

Differs from the type in its smaller and thinner leaves and much smaller sterile flowers.

Schizophragma hypoglaucum Rehder, n. sp.

Frutex radicibus scandens. Folia chartacea, oblongo-ovata, manifeste acuminata, basi rotundata v. late cuneata, integerrima, 8–15 cm. longa et 3.5–6.5 lata, supra obscure viridia glabra, subtus glauca (sub microscopio dense papillosa), glabra axillis barbatis exceptis. Cyma fere glabra; tubus calycis glaber; sepala florum sterilium oblonga vel anguste oblonga, basi cuneata, apice obtusa, subtus glaucescentia et papillosa, 3–5 cm. longa et 7–17 mm. lata.

Szech'uan: Mt. Omei, July 1904, *E. H. Wilson* (Veitch Exped. No. 4885).

In the shape and smoothness of the leaves it resembles much *S. integrifolium*, var. *glaucescens* Rehder which has the leaves glaucescent beneath, but the species is easily distinguished by the intensely glaucous color of the under side of the leaves and particularly by the papillae which are entirely wanting in that variety, also by the dark green upper side, the glabrous calyx-tube and the obtuse sepals of the sterile flowers. It is so strikingly different from typical *S. integrifolium* that it is hardly advisable, though the variety *glaucescens* seems to represent a connecting link, to consider it a variety of that species, particularly as the papillosity of the under side of the leaves affords a good morphological character for separation.

Schizophragma hydrangeoides Siebold & Zuccarini, *Fl. Jap.*, I. 59, t. 26. (1835). — Schneider, *Ill. Handb. Laubholzk* I. 393, fig. 252 a–i (1905).

Hydrangea Taquetii Léveillé, in Fedde, *Rep. Nov. Sp.* VIII. 282 (1910).

Korea: Quelpaert, *T. Taquet* (Nos. 807, 808, 2885).

So far as I know *S. hydrangeoides* has never been reported from Korea before. Taquet's No. 807 and 808 represent the type of *Hydrangea Taquetii* Léveillé.

DICHROA Lour.

Determined by ALFRED REHDER.

Dichroa febrifuga Loureiro, *Fl. Cochin.* 301 (1790). — Hemsley in *Jour. Linn. Soc.* XXIII. 275 (1887).

Western Hupeh: Ichang, ravines, alt. 1–500 m., June 1907 (No.

2956). Western Szech'uan: Chang-yang, June 1901 (Veitch Exped. No. 1174); Mt. Omei, June 1904 (Veitch Exped. No. 4890). Fokien, Kwangtung and Hong Kong (ex Hemsley).

ITEA L.

Determined by ALFRED REHDER.

Itea ilicifolia Oliver in *Hooker's Icon.* XVI. t. 1538 (1886).

Western Hupeh: Ichang, abundant, alt. 300–900 m., June, September and November 1907 (No. **325**, in part); April 1900 (Veitch Exped. No. 144). Western Szech'uan: near Wa-shan, cliffs, alt. 900 m., July 1908 (No. **325**, in part).

RIBES L.

Determined by ED. JANCZEWSKI.

Ribes himalayense Decaisne, *a* **glandulosum** Janczewski in *Bull. Acad. Cracovie Sci. Nat.* 1910, 69.

Western Szech'uan: southeast of Tachien-lu, rocky places, alt. 2100–2550 m., June 1908 (No. **999**); Mupin, woodland, 1800–2400 m., July 1908 (Nos. **799, 1800**).

Ribes himalayense, γ urceolatum Janczewski in *Bull. Acad. Cracovie Sci. Nat.* 1910, 69.

Western Hupeh: Fang Hsien, thickets, alt. 2250 m., September 1907 (No. **317**).

Ribes Meyeri Maximowicz, *a* **tanguticum** Janczewski, *Monogr. Groseill.*[1] 299 (1907).

Western Szech'uan: Pan-lan-shan, west of Kuan Hsien, thickets, alt. 1200–1800 m., August 1908 (No. **803**); Mupin, thickets, alt. 1800–2100 m., August 1908 (No. **896**).

Ribes moupinense Franchet, *β* **tripartitum** (Batalin) Janczewski, *Monogr. Groseill.* 300 (1907).

Western Hupeh: Hsing-shan Hsien, woods, alt. 1500 m., June 1907 (No. **1802**), thickets, alt. 1200 m., May 26, 1907 (No. **1803**).

Ribes moupinense, γ laxiflorum Janczewski in *Bull. Acad. Cracovie Sci. Nat.* 1910, 70.

Western Szech'uan: Wa-shan, thickets, alt. 1800 m., July 1908 (No. **822**); Ta Hsing-ling, Ching Chi Hsien, among rocks, alt. 1800–

[1] Monographie des Groseilliers, originally published in *Mém. Sci. Phys. Genève'* XXXV.

2100 m., May 1908 (No. **1797**); Chin Ting-shan, thickets, alt. 2400 m., May 23, 1908 (No. **1801**).

Ribes longeracemosum Franchet, *a* **Davidii** Janczewski in *Bull. Acad. Cracovie Sci. Nat.* 1910, 71.

Western Szech'uan: Ta Hsiang-ling, Ching Chi Hsien, alt. 2100 m., May 1908 (No. **898**); Mupin, woodlands, alt. 1800–2400 m., June 1908 (No. 898, in part); Ching Chi Hsien, thickets, alt. 2700–3000 m., September 15, 1908 (No. **929**); Wa-shan, thickets, alt. 2100–2400 m., June 1908 (No. **1798**).

Ribes longeracemosum, *β* **Wilsonii** Janczewski in *Bull. Acad. Cracovie Sci. Nat.* 1910, 71.

Western Hupeh: Fang Hsien, woodlands and thickets, alt. 1500–2400 m., May 27, August and September 1907 (No. **280**).

Ribes alpestre Decaisne, *a* **commune** Janczewski in *Bull. Acad. Cracovie Sci. Nat.* 1910, 72.

Western Hupeh: Fang Hsien, thickets, alt. 2100–2550 m., May, July and September 1907 (No. **277**).

Ribes alpestre, *β* **giganteum** Janczewski in *Bull. Acad. Cracovie Sci. Nat.* 1910, 72.

Western Szech'uan: common hedge-plant around Tachien-lu, alt. 2400–3350 m., July 9 and 26, 1908 (No. **836**).

Ribes pulchellum Turczaninow in *Bull. Soc. Nat. Moscou*, V. 191 (1832).

Western Szech'uan: Wa-ssu country, Wên-chuan Hsien, among rocks, alt. 2400 m., November 1908 (No. **1246**); near Mongkong Ting, side of streams, alt. 2700 m., June 27, 1908 (No. **1789**).

Ribes Vilmorinii Janczewski in *Bull. Acad. Cracovie Sci. Nat.*, 1906, 290.

Western Szech'uan: Ta-p'ao-shan, Ching-chi Hsien, thickets, alt. 2700 m., September 15, 1908 (No. **913**).

Ribes humile Janczewski in *Bull. Acad. Cracovie Sci. Nat.*, 1910, 73.

Western Szech'uan: Pan-lan-shan, west of Kuan Hsien, on rocks, alt. 2100 m., June 1908 (No. **1788**).

Ribes tenue Janczewski in *Bull. Acad. Cracovie Sci. Nat.*, 1906, p. 290.

Western Szech'uan: Wa-shan, rocky places, alt. 1800 m., July

1908 (No. 823); Ching Ting-shan, thickets, alt. 1800 m., May 25, 1900 (No. 1794); Nin-tou-shan, west of Kuan Hsien, thickets, alt. 1800 m., June 20, 1908 (No. 1795). Western Hupeh: Chang-lo Hsien, woodlands, alt. 1200 m., May 1907 (No. 38); Tatung Hsien, rocky places, alt. 1500 m., July 1907 (No. 90).

Ribes glaciale Wallich in Roxburgh, *Fl. Ind.* II. 513 (1824).

Western Hupeh: Fang Hsien, woods, alt. 2250 m., May 18 and September 1907 (No. 180, forma sepalis angustis); Patung Hsien, cliffs, alt. 1200 m., April 1907 (No. 1790); Hsing-shan Hsien, thickets, common, alt. 1580 m., May 26, 1907 (No. 1791, forma sepalis latioribus).

Ribes glaciale, β glandulosum Janczewski in *Bull. Acad. Cracovie Sci. Nat.*, 1910, 74.

Western Hupeh: Fang Hsien, side of streams in thickets, alt. 1800 m., May 15, 1907 (Nos. 1792, 1793).

Ribes luridum Hooker f. & Thomson in *Jour. Linn. Soc.* II. 87 (1858).

Western Hupeh: Chang-lo Hsien, thickets and cliffs, alt. 1200 m., May and July 1907 (No. 100).

Ribes acuminatum Wallich in Roxburgh, *Fl. Ind.* II. 514 (1824).

Western Szech'uan: Chin-ting-shan, alt. 1800–2400 m. (No. 1796).

Ribes Maximowiczii Batalin in *Act. Hort. Petrop.* XI. 487 (1890).

Western Szech'uan: Mupin, thickets, alt. 1800 m., September 1908 (No. 870); Chin-ting-shan, thickets, alt. 1500–2250 m., May 23, 1908 (No. 958); Wa-shan, thickets, 1800–2250 m., August 1908 (No. 958, in part).

Ribes Franchetii Janczewski in *Bull. Acad. Cracovie Sci. Nat.*, 1909, 64, figs. 3, 4.

Western Hupeh: Fang Hsien, thickets, alt. 1500–2100 m., May 19, 28 and August 1907 (No. 73 in part), September 1907 (No. 191); Hsing-shan Hsien, cliffs and woods, alt. 2250 m., May 3, 1907 (No. 73, in part).

Ribes laurifolium Janczewski in *Bull. Acad. Cracovie Sci. Nat.*, 1910, 79, fig. 6.

Western Szech'uan: Wa-shan, rocks, rare, alt. 2300 m., September 1908 (No. 817).

ROSACEAE.

SORBARIA A. Br.

Determined by ALFRED REHDER.

Sorbaria arborea Schneider, *Ill. Handb. Laubholzk.* I. 490, fig. 297 (1905).

Western Hupeh: Chang-lo Hsien, thickets, alt. 1500–2100 m., July and October 1907 (No. **499**[a]); Chang-yang Hsien, thickets, alt. 1500–1800 m., July 1907 (No. **2741**); Fang Hsien, thickets, alt. 1500–2100 m., July 1907 (No. **2742**); Hsing-shan Hsien, woodlands, alt. 1500–1800 m., July 1907 (No. 2743); Patung Hsien, thickets, alt. 1500–2400 m., July 1907 (No. **2743**[a]). Western Szech'uan: Mupin, woodlands, alt. 1500–2400 m., November 1908 (No. **1235**, in part); Wa-shan, thickets, alt. 1600–2200 m., July 1908 (No. **2745**).

This variable species is most nearly related to *S. Lindleyana* Maximowicz from which it differs in its longer stamens, two or three times as long as the petals, in the shorter calyx-tube and in the leaflets being cuneate at the base and covered beneath with a fasciculate floccose tomentum or glabrous in one variety.

Sorbaria arborea, var. **subtomentosa** Rehder, n. var.

A typo recedit foliis subtus tomento fasciculato densiore usque ad maturitatem persistente vestitis, argute minuteque biserrulatis, venis magis congestis circa 2 mm. tantum distantibus, inflorescentia dense floccosa, densiore, ramis adscendentibus, floribus majoribus, petalis 3 mm. longis, carpellis pubescentibus vel glabris.

Western Szech'uan: Wa-ssu country, Wên-chuan Hsien, woodlands, alt. 1800–3100 m., November 1908 (No. **1235**, fruiting specimen, type); Ta Hsing-ling, Ching-chi Hsien, thickets, alt. 1600–2200 m., August 1908 (No. **2744**, flowers); Pan-lan-shan, west of Kuan Hsien, woodlands, alt. 2100–2400 m., September 1910 (No. **4474**).

Differs from the type in its denser persistent tomentum of the under side of the leaves, their more closely set veins, 2 mm. apart, while in the type they are 3–4 mm. apart, and in the more densely tomentose inflorescence. In the type specimen the follicles are sparingly pubescent, while in the flowering specimen they are quite glabrous; therefore these two specimens may possibly represent two distinct forms, but in foliage they are exactly alike.

Sorbaria arborea, var. **glabrata** Rehder, n. var.

A typo recedit foliis glabris subtus tantum in axillis barbatis v. interdum ad costam mediam minute puberulis, panicula glabra v. tantum in parte inferiore tomento floccoso cito deciduo vestita.

Western Hupeh: Hsing-shan Hsien, thickets, alt. 1500–2100 m., July and October 1907 (No. **499**). Eastern Szech'uan: South Wushan, *A. Henry* (No. 6245). Western Szech'uan: West of Kuan Hsien, thickets, alt. 2100–2700 m., August 1910 (No. **4475**); Pan-lan-shan, west of Kuan Hsien, woodlands, alt. 2500 m., September 1910 (No. **4476**); around Sungpan, thickets, alt. 2400–2700 m., August 1910 (No. **4477**); Mupin, woodlands, alt. 2400–2700 m., October 1910 (No. **4340**).

Differs from the type chiefly in its glabrous foliage. The Hupeh plant, which I consider as representing the type of this variety, has the leaves generally oblong-lanceolate to lanceolate, the inflorescence narrower with ascending branches and the stamens sometimes nearly three times as long as the petals, while the Szech'uan form has the leaflets generally oblong-ovate or oval-ovate, the inflorescence loose with spreading branches and the stamens less than twice as long as the petals. No. 4340 differs again in the more closely set veins of the leaflets, resembling in this respect the var. *subtomentosa*.

RUBUS L.

Determined by W. O. Focke.

Subgen. DALIBARDA

Rubus Fockeanus S. Kurz in *Jour. As. Soc. Bengal*, XLIV. pt. II. 206 (1875). — Focke in *Bibl. Bot.* LXXII. 16 (*Spec. Rub.*) (1910).

Rubus loropetalus Franchet, *Pl. Delavay*. 203 (1890).

Western Szech'uan: Tachien-lu, alpine regions, alt. 3300–3700 m., September 1908 (No. **1002**).

Rubus loropetalus can not be distinguished with certainty in the herbarium from *R. Fockeanus*.

Subgen. CYLACTIS

Rubus simplex Focke in *Hooker's Icon.* X. t. 1948 (1854); in *Bibl. Bot.* LXXII. 28 (*Spec. Rub.*) (1910).

Western Hupeh: Fang Hsien, thickets, alt. 1800 m., September 1907 (No. **282**).

Rubus xanthocarpus Bureau and Franchet in *Jour. de Bot.* V. 46 (1891). — Focke in *Bibl. Bot.* LXXII. 29 (*Spec. Rub.*) (1910).

Western Szech'uan: Min Valley, Mao-chou, stony places, alt. 1200–2700 m., May and August 1908 (No. **806**).

Subgen. DALIBARDASTRUM

Rubus tricolor Focke in *Bibl. Bot.* LXXII. 40 (*Spec. Rub.*) (1910).

Rubus polytrichus Franchet, *Pl. Delavay.* 203 (not Progel in 1882) (1890).

Western Szech'uan: Wa-shan, thickets, alt. 1800–2100 m., July and September 1908 (No. **828**).

Subgen. MALACHOBATUS

Rubus hupehensis Oliver in *Hooker's Icon.* XIX. t. 1816 (1889).

Western Szech'uan: Patung Hsien, alt. 900–1200 m., June and July 1908 (No. **99**).

I formerly was unable to find clear distinctions in the descriptions of *R. Swinhoei* Hance and *R. hupehensis*; therefore I combined the two species. Now I think, however, that there are constant characters by which the two plants can be distinguished. *R. Swinhoei* is evergreen, whereas *R. hupehensis* seems to have deciduous leaves.

Rubus Henryi Hemsley & Kuntze in *Jour. Linn. Soc.* XXIII. 231 (1887). — Focke in *Bibl. Bot.* LXXII. 43 (*Spec. Rub.*) (1910).

Rubus bambusarum Focke in *Hooker's Icon.* XX. text to t. 1952 (1891).

Western Hupeh: north and south of Ichang, thickets, alt. 1200–1800 m., June and August 1907 (No. **48**); Changyang Hsien, woods, alt. 1200–1800 m., June and July 1907 (No. **76**).

Ternate and simply trifid leaves occur on the same branches of Mr. Wilson's specimens. This shows that *R. bambusarum* cannot be separated from *R. Henryi*.

Rubus Playfairianus Hemsley (in sched., nom. mutat.) apud Focke in *Bibl. Bot.* LXXII. 45 (*Spec. Rub.*) (1910).

Western Hupeh: common around Ichang, alt. 300–900 m., May and June 1907 (No. **4**). Western Szech'uan: Ta Hsing-ling, Ching Chi Hsien, thickets, alt. 300–900 m., May 1908 (No. **4**[a]).

Rubus chroosepalus Focke in *Hooker's Icon.* XX. t. 1952 (1891); in *Bibl. Bot.* LXXII. 51 (*Spec. Rub.*) (1910).

Western Hupeh: thickets around Ichang, alt. 300–900 m., July 1907 (No. 79).

Rubus fusco-rubens Focke, n. sp.

Affinis *R. assamensi* Focke sed foliis longius petiolatis cordatis facillime distinguendus. Rami et petioli tomentoso-pubescentes, aculeis falcatis mediocribus et parvis instructi. Petioli fere 4 cm. longi; folia e basi lata cordata ovato-lanceolata, diam. 10.5 cm., acuminata, fundo palmato-quinquenervia, praeterea utrinque fere 4–5-costulata, margine repando-sinuata, serrulata, supra in nervis solum pilosa, subtus cano-tomentosa; stipulae fugaces. Inflorescentia extraaxillaris, sicut in *R. assamensi* et *R. chroosepalo;* bracteae in lacinulas lineares fissae; pedicelli et calyces glanduliferi; sepala interne glabriuscula, cum disco fusco-rubentia; carpophorum fundo pilorum strictorum densissimorum cingulo circumdatum. Fructus nigri.

Western Hupeh: Changyang Hsien, alt. 900–1200 m., May and July 1907 (No. 3025).

Rubus Gentilianus Léveillé & Vaniot in *Bull. Acad. Intern. Geogr. Bot.* XI. 99 (1902). — Focke in *Bibl. Bot.* LXXII. 53 (*Spec. Rub.*) (1910).

Western Szech'uan: Mupin, alt. 1200–1500 m., June and October 1908 (No. 1127).

Rubus ichangensis Hemsley & Kuntze in *Jour. Linn. Soc.* XXIII, 231 (1887). — Focke in *Bibl. Bot.* LXXII. 55 (*Spec. Rub.*) (1910).

Western Hupeh: Changyang Hsien, ravines, etc., alt. 600–1200 m., June and December 1907 (No. 663); Western Szech'uan: Mupin, thickets, alt. 1500–1800 m., October 1908 (No. 1052).

Rubus Parkeri Hance in *Jour. Bot.* XX. 260 (1882). — Focke in *Bibl. Bot.* LXXII. 67 (*Spec. Rub.*) (1910).

Rubus Parkeri, var. **longisetosus** Focke, n. var.

Western Hupeh: thickets around Ichang, alt. 300–900 m., April and June 1907 (No. 44).

Rubus Parkeri, var. **brevisetosus** Focke, n. var.

Western Hupeh: thickets around Ichang, alt. 300–900 m., May 1907 (No. 3023).

Rubus Lambertianus Seringe in De Candolle, *Prodr.* II. 567 (1825).— Focke in *Bibl. Bot.* LXXII. 70 (*Spec. Rub.*). (1910).

Western Hupeh: north and south of Ichang, thickets, alt. 300–1000 m., September and October 1907 (No. **482**).

Rubus clemens Focke in *Bibl. Bot.* LXXII. 105 (*Spec. Rub.*) (1910).

Western Szech'uan: Mupin, thickets, common, alt. 600–2100 m., July and September 1908 (No. **871**).

Rubus irenaeus Focke in *Bot. Jahrb.* XXIX. 394 (1901); in *Bibl. Bot.* LXXII. 144 (*Spec. Rub.*) (1910).

Western Hupeh: Changyang Hsien, woods, common, alt. 1200–2300 m., July and September 1907 (No. **141**); Chang-lo Hsien, side of streams alt. 900 m., July 1907 (No. **3022**).

Unarmed or with a few minute inconspicuous prickles.

Rubus Buergeri Miquel in *Ann. Mus. Lugd.-Bat.* III. 36 (1867); *Prol. Fl. Jap.* 224 (1866–67).

Western Szech'uan: Hung Ya Hsien, woods, alt. 600 m., June 9, 1908 (No. **3014**).

Subgen. IDEOBATUS

Ser. CORCHORIFOLII

Rubus corchorifolius Linnaeus f., *Suppl. Pl. Syst. Veget.* 263 (1781).— Focke in *Bibl. Bot.* LXXII. 131 (*Spec. Rub.*) (1911).

Western Hupeh: north and south of Ichang, thickets, alt. 300–1200 m., June 2, 1907 (No. **15**).

Rubus trianthus Focke in *Bibl. Bot.* LXXII. 140, fig. 59 (*Spec. Rub.*) (1911).

Western Hupeh: Chang-lo Hsien, alt. 1200–1500 m., July 1907 (No. **78**).

Ser. ROSAEFOLII

Rubus Thunbergii Siebold & Zuccarini in *Abhand. Akad. Münch.* IV. pt. II. 126 (1846). — Focke in *Bibl. Bot.* LXXII. 159, fig. 68 (*Spec. Rub.*) (1911).

Rubus Thunbergii, var. **glabellus** Focke, n. var.

Differt a planta typica Japoniae statura robustiore et ramis foliisque parcius pilosis.

Western Hupeh: north and south of Ichang, roadsides, etc., alt. 300–900 m., May and July 1907 (No. **2**); Hsing-shan Hsien, rocky places, alt. 300–900 m., May and June 1907 (No. **3019**).

Rubus Argyi Léveillé, *R. talaikiaensis* Léveillé and *R. eustephanos* Focke, which are closely allied to *R. Thunbergii*, are well distinguished from var. *glabellus*.

Ser. Pungentes

Rubus amabilis Focke in *Bot. Jahrb.* XXXVI. 53 (1905); in *Bibl. Bot.* LXXII. 163, fig. 70 (*Spec. Rub.*) (1911).

Western Szech'uan: Tachien-lu, alt. 2400–3000 m., June and August 1908 (No. **830**).

Rubus pungens Cambessèdes in Jacquemont, *Voyage*, IV. 48, t. 59 (1844). — Focke in *Bibl. Bot.* LXXII. 165 (*Spec. Rub.*) (1911).

Western Hupeh: Fang Hsien, thickets, alt. 1200–1800 m., May and August 1907 (No. **72**); Hsing-shan Hsien, woodlands, alt. 1200–1800 m., May 16, 1907 (No. **72** in part); Changyang Hsien, thickets, alt. 600–1200 m., May 14, 1907 (No. **3021**). Western Szech'uan: west of Kuan Hsien, alt. 1800–2100 m., May and June 1908 (No. **834**).

Rubus pileatus Focke in *Hooker's Icon.* XX. text to t. 1952, p. 3 (1891); in *Bibl. Bot.* LXXII. 167 (*Spec. Rub.*) (1911).

Western Szech'uan: Was-su country, Wên-chuan Hsien, thickets, alt. 1800–2500 m., July and August 1908 (No. **813**); Wa-shan, thickets, alt. 2100 m., September 1908 (No. **858**[a]); west of Kuan Hsien, clearings, alt. 1800–2500 m., June and September 1908 (No. **858**[b]); Pan-lan-shan, west of Kuan Hsien, alt. 2100–2700 m., June 1908 (No. **3018**).

Rubus pileatus, var. foliolis subtus cano-tomentosis.

Western Szech'uan: Ching-Chi Hsien, uplands, alt. 2400–3000 m., September 15, 1908 (No. **858**).

Rubus lasiostylus Focke in *Hooker's Icon.* XX. t. 1951 (1891); in *Bibl. Bot.* LXXII. 167 (*Spec. Rub.*) (1911).

Western Hupeh: north and south of Ichang, thickets, alt. 1200–1800 m., September 1907 (No. **188**).

Rubus lasiostylus, var. (v. subsp.) **dizygos** Focke, n. var.
Folia ramorum fertilium multa pinnato-quinata; stipulae bracteaeque angustiores videntur; flores rosei.

Western Hupeh: Fang Hsien, uplands, alt. 1600 m., July and September 1907 (No. **279**).

Rubus eucalyptus Focke in *Bibl. Bot.* LXXII. 169 (*Spec. Rub.*) (1911).

Western Szech'uan: near Monkong Ting, thickets, alt. 1800 m., June 19, 1908 (No. **3016**); Chin Ting-shan, thickets, alt. 1500–2100 m., May 23, 1908 (No. **3017**).

This species belongs with *R. pileatus*, *R. lasiostylus* and *R. trullissatus* in a peculiar group characterized by white woolly fruits.

Rubus trullissatus, Focke in *Bibl. Bot.* LXXII. 169 (*Spec. Rub.*) (1911).

Western Hupeh: Hsing-shan Hsien, thickets, alt. 1200 m., June 1907 (No. **57**).

Imperfectly known. The plant cannot be placed under another species.

Rubus biflorus Hamilton ex Smith in Rees, *Cyclop.* XXX. no. 9 (1819). — Focke in *Bibl. Bot.* LXXII. 166 (*Spec. Rub.*) (1911).

Rubus biflorus, var. **quinqueflorus** Focke, n. var.
Ramis fertilibus 3–8-floris.

Western Szech'uan: southeast of Tachien-lu, thickets, alt. 1800–2100 m., July 1908 (No. **832**).

Rubus macilentus Cambessèdes in Jacquemont, *Voyage*, IV. 49, t. 60 (1844). — Focke in *Bibl. Bot.* LXXII. 166 (*Spec. Rub.*) (1911).

Western Szech'uan: Mupin, roadsides, alt. 1200–1800 m., May and August 1908 (No. **850**).

Rubus lutescens Franchet, *Pl. Delavay.* 206 (1889). — Focke in *Bibl. Bot.* LXXII. 162, fig. 69 (*Spec. Rub.*) (1911).

Western Szech'uan: Pan-lan-shan, west of Kuan Hsien, stony places, alt. 3300–3700 m. (No. **3026**).

Ser. IDAEI

Rubus thibetanus Franchet in *Nouv. Arch. Mus. Paris*, sér. 2, VIII. 221 (*Pl. David.* II. 39) (1885). — Focke in *Bibl. Bot.* LXXII. 179, fig. 74 (*Spec. Rub.*) (1911).

Rubus Veitchii Rolfe in *Kew Bull. Misc. Inform.* 1909, 258.

Western Szech'uan: Mao-chou, dry regions, alt. 1200–1800 m., May and August 1908 (No. **804**).

A very curious plant and perhaps the type of a well marked section. It resembles the South African *R. Ludwigii* Ecklon & Zeyher.

Rubus inopertus Focke in *Bibl. Bot.* LXXII. 182 (*Spec. Rub.*) (1911).

Rubus niveus, subsp. *inopertus* Focke in *Bot. Jahrt.* XXIX. 400 (1901).

Western Hupeh: north and south of Ichang, thickets, alt. 600–1200 m., June and July 1907 (No. **97**). Western Szech'uan: Washan, thickets, alt. 1500–2200 m., July and September 1908 (No. **946**).

This Chinese plant seems to be rather constant, and looks very different from the tropical *R. niveus* Thunberg (*R. lasiocarpus* Smith, *R. Horsfieldii* Miquel). It is therefore reasonable to separate the two plants specifically, although there occur connecting links in the Himalayas.

Rubus coreanus Miquel in *Ann. Mus. Lugd.-Bat.* III. 34 (1867); *Prol. Fl. Jap.* 222 (1866–67). — Focke in *Bibl. Bot.* LXXII. 184 (*Spec. Rub.*) (1911).

Western Hupeh: north and south of Ichang, alt. 300–1200 m., July 1907 (No. **31**); Chang-lo Hsien, alt. 1200 m., September 1907 (No. **152**).

Rubus Kuntzeanus Hemsley in *Jour. Linn. Soc.* XXIII. 232 (1887). — Focke in *Bibl. Bot.* LXXII. 195 (*Spec. Rub.*) (1911).

Western Hupeh: north and south of Ichang, thickets, alt. 300–1500 m., June and August 1907 (No. **92**).

Rubus flosculosus Focke in *Hooker's Icon.* XX. text to t. 1952, p. 3 (1891); in *Bibl. Bot.* LXXII. 193 (*Spec. Rub.*) (1911).

Western Hupeh: Fang Hsien, thickets, alt. 1200–1500 m., June and September 1907 (No. **145**[a]).

Rubus flosculosus, f. **parvifolius** Focke, n. forma.

Western Hupeh: Chang-lo Hsien, thickets, alt. 900–1200 m., September 1907 (No. **145**)

Rubus flosculosus f. **laxiflorus** Focke, n. forma.

Western Szech'uan: Tachien-lu, alt. 1800–2400 m., October 1908 (No. **1246**).

Rubus Giraldianus Focke in *Bot. Jahrb.* XXIX. 401 (1901); in *Bibl. Bot.* LXXII. 194, fig. 78 (*Spec. Rub.*) (1911).

Western Szech'uan: Wa-ssu country, Wên-chuan Hsien, thickets, alt. 1500–2200 m., July and August 1908 (No. **815**).

Rubus adenophorus Rolfe in *Kew Bull. Misc. Inform.* 1910, p. 382.

Rubus sagatus Focke in *Bibl. Bot.* LXXII. 198, fig. 80 (*Spec. Rub.*) (1911).

Western Hupeh: Chang-lo Hsien, thickets, alt. 1200 m., June and July 1907 (No. **81**).

Rubus innominatus S. Moore in *Jour. Bot.* XIII. 226 (1875). — Focke in *Bibl. Bot.* LXXII. 195 (*Spec. Rub.*) (1911).

Rubus innominatus, subsp. **plebejus** Focke, subsp. nov.

Rami petiolique floccoso-tomentelli. Folia rami fertilis omnia ternata; foliolum terminale fere quadratico-suborbiculare, diam. fere 5–6 cm. Calyces nunc rubro-setosi, nunc setoso-echinati, sepalis post anthesin fructum involucrantibus (sicut in typo); petala rosea (ex Wilson); ovaria tomentosa. Fructus rubri.

Western Hupeh: Ichang, roadsides, alt. 300–900 m., June and July 1907 (No. **42**).

The pinnate leaves and narrower leaflets distinguish the typical plant. It may be a variable species, but it is at present impossible to decide if there exist clear limits between allied forms.

In general aspect the subsp. *plebejus* recalls many common European brambles.

Rubus chiliadenus Focke in *Hooker's Icon.* XX. text to t. 1952, p. 4 (1891); in *Bibl. Bot.* LXXII. 198 (*Spec. Rub.*) (1911).

Western Hupeh: Ichang, roadsides, alt. 600 m., August 6, 3907 (No. **3024**).

Rubus pinfaensis Léveillé & Vaniot in *Bull. Soc. Agric. Sarthe* 1904, 5. — Focke in *Bibl. Bot.* LXXII. 199, fig. 81 (*Spec. Rub.*) (1911).

Western Hupeh: Ichang gorge, cliffs, alt. 300 m., March 20, 1908 (No. **3024**).

Very near *R. ellipticus* Smith, but perhaps specifically distinct.

Rubus mesogaeus Focke in *Bot. Jahrb.* XXIX. 399 (1901); in *Bibl. Bot.* LXXII. 204, fig. 82 (*Spec. Rub.*) (1911).

Western Hupeh: north and south of Ichang, thickets, alt. 600–1200 m., May and July 1907 (Nos. **52**, **71**); Hsing-shan Hsien, thickets, alt. 1200 m., July 1907 (No. **52**[a]).

Rubus mesogaeus, f. floribus roseis.

Western Szech'uan: Wa-ssu country, Wên-chuan Hsien, woodlands, alt. 1200–2400 m., June and September 1908 (No. **1042**); southeast of Tachien-lu, thickets, alt. 1800–2100 m., June 1908 (No. **3013**); Pan-lan-shan, west of Kuan Hsien, woodlands, alt. 2100–3300 m., June 1908 (No. **3015**).

Rubus aurantiacus Focke in *Bibl. Bot.* LXXII. 211 (*Spec. Rub.*) (1911).

Western Szech'uan: Tachien-lu, thickets, alt. 2100–2700 m., September 1908 (No. **992**).

Rubus vicarius Focke in *Bibl. Bot.* LXXII. 211 (*Spec. Rub.*) (1911).

Western Szech'uan: Wa-shan, thickets, alt. 1500–2100 m., July and September 1908 (No. **948**).

It would be instructive to cultivate these two forms of the Idaeus-group.

MADDENIA Hook. f. & Thoms.

Determined by E. KOEHNE.

Maddenia hypoleuca Koehne, n. sp.

Frutex 2–6-metralis; rami novelli glabri v. pulverulento-puberuli v. pubescentes dein saepe glabri fusci, biennes crassiusculi, nigrescenti-fusci saepe pulverulento-puberuli haud nitiduli; gemmae ovatae, 2 mm. longae, glabrae, squamis interioribus sub anthesi auctis. Stipulae 6–13 mm. longae, lineares v. lanceolatae v. e basi orbiculari lineari-caudatae, basi glanduloso-fimbriatae; petioli 2–4 mm. longi, eglandulosi, subtus glabri, supra in canaliculo initio pubescentes; lamina e basi obtusa v. cordata ovato-oblonga v. oblonga, sub anthesi 3–5.5 cm. longa, 1.3–1.8 cm. lata, demum in ramulis fertilibus 5–6.5 cm. longa, 1.3–3.2 cm. lata, in innovationibus 7.5–16 cm. longa, 4.3–7.5 cm. lata, sensim v. subito acuminata, duplicato-serrata dentibus

denticulisque argutissime acuminatis, ima basi vero glandulis nonnullis stipitatis fimbriata, utrinque glaberrima, nervis utrinsecus 14–18, supra laete viridis, subtus albicans sed epapillosa, costa venisque ochraceis venarum reticulo debili leviter cinerascente. Racemi pedunculis 3–4 cm. longis foliatis initio puberulis v. pubescentibus dein glabratis insidentes, 3–5 cm. longi, basi 2 cm. diam., densiflori, axi pubescente dein glabrato; bracteae calyces haud aequantes v. superiores pedicellis breviores, rotundatae, glanduloso-fimbriatae; pedicelli 4 mm. longi pubescenti-hirtelli; cupula 4 mm. longa, basi brevissime hirtella ceterum extus intusque glabra; sepala 10 inaequalia, longiores 3 mm. longa, nulla petaloidea; flores viridescentes v. fusco-purpurascentes; stamina 23–30 quorum longiora 5–6 mm. longa; pistillum 9 mm. longum, glabrum, stylus staminibus vix brevior; flores pistillo obsoleto munitos non vidi. Drupa 8 mm. longa 5 mm. diam. v. paullo major, nigra; putamen 9 : 5 : 4.5 mm., carina levi costulisque paucis obliquis tenuibus munitum, pariete tenui fragili.

Western Hupeh: Hsing-shan Hsien alt. 1200–1800 m., May 1907 (No. **2850**), alt. 1200–1500 m., May 10, 1907 (No. **2849**); Fang Hsien, alt. 1500 m., July 1907 (No. **2848**).[1]

Maddenia hypoxantha Koehne n. sp.

Frutex 3–6 metralis; ramuli novelli luteo-fusci minutissime pulverulento-puberuli sparsimque pubescenti-hirtelli, demum intense fusci, hirtelli, biennes sat crassi, nigricantes, glabri; gemmae crasse ovatae, 3–4.5 mm. longae, squamis ciliatis ceterum glabrae, squamis interioribus sub anthesi auctis. Stipulae 10–20 mm. longae, lineares, glabrae, usque ad medium tenere glanduloso-serratae; petioli 3–6 mm. longi, eglandulosi, adpresso-pilosi demum dense hirtelli; lamina e basi cordata v. in foliis supremis obtusa v. acuta oblonga, suprema oblongo-lanceolata v. lanceolata, sub anthesi 4–6.5 cm. longa, 2–3 cm. lata, demum 9–16.5 cm. longa, 3–6 cm. lata, sensim v. subito acuminata, duplicato-serrata dentibus denticulisque argutissime acuminatis saepe flexuosis, ima basi glandulis paucis v. pluribus stipitatis glanduloso-fimbriata, supra glabra, subtus in costa nervisque strigulosa facie glabra, nervis utrinsecus 12–20, supra laete v. lutescenti-viridis, subtus initio pallidior dein lutescens epapillosa venarum reticulo

[1] This and the two following species are represented also in Wilson's earlier collections by flowering specimens. *Maddenia hypoleuca*: Chang-yang, June 1901 (No. 429 in part). *Maddenia hypoxantha*: Mt. Omei, June 1904 (No. 4857). *Maddenia Wilsonii*: Chang-yang, June 1901 (No. 429 in part). ALFRED REHDER.

debili intensius colorato, costa nervisque laete ochraceis. Racemi pedunculis circ. 4 cm. longis foliatis pubescentibus insidentes, 1.5–2 cm. longi, 1.8 cm. diam. densiflori, axi pubescente demum breviter hirtello; bracteae inferiores calycem aequantes, superiores subbreviores, lanceolato-lineares, basi glandulis paucis stipitatis munitae, ochraceae; pedicelli 1–2 mm. longi, pubescentes; cupula 2.7 mm. longa, brevissime hirtello-puberula, intus glabra; sepala circ. 10, inaequalia, 1.5–2.5 mm. longa, extus parce pilosa intus glabra, nulla petaloidea; flores viridescentes; stamina c. 26, ad 4.5 mm. longa; pistillum 6 mm. longum, glabrum, stylus stamina parum superans. Drupa 9 mm. longa, 9 mm. diam., nigra; putamen 7 : 5 : 3.7 mm. ovatum acutiusculum, carina costulisque obliquis debilibus munitum, fragile.

Western Szech'uan, southeast of Tachien-lu, alt. 1800–2700 m., May and July 1908 (No. **909**, mixed with flowering specimens of *M. Wilsonii*).

Maddenia Wilsonii Koehne, n. sp.

Frutex 1.3–3.3 m. altus; ramuli novelli dense ochraceo-hirtello-tomentosi, biennes nigricantes v. intense fusci, glabri vix nitiduli; gemmae ovatae, 3 mm. longae, tomentosae, squamis interioribus sub anthesi auctis. Stipulae 9–18 mm. longae, lanceolatae, ochraceae, basi glanduloso-fimbriatae, in innovationibus interdum oblique cordato-rotundatae ac caudatae, herbaceae, magna ex parte fimbriatae; petioli 2–7 mm. longi, eglandulosi, dense ochraceo-tomentosi; lamina e basi acuta v. cordata inverse oblonga v. oblongo-oblanceolata, in ramulis florentibus 2–8 cm. longa, 1–3.5 cm. lata, in innovationibus demum 5–14 cm. longa, 2.8–3.5 cm. lata, longe acuminata, inciso-duplicato-serrata dentibus denticulisque argutissime acuminatis angustis, ima basi glandulis stipitatis fimbriata, supra pilis adpressis rigidulis longiusculis conspersa v. rarius glabra, subtus in costa nervisque densissime, in facie laxius v. dense hirto-villosa, nervis utrinsecus 15–20, supra laete viridis, subtus sublutescens v. demum cinereo-subfusca, epapillosa, costa nervisque ochraceis. Racemi pedunculis 2.5–10 cm. longis foliatis insidentes, 2–3 cm. longi, 2 cm. diam., ovati, densiflori, axi villoso-tomentoso; bracteae inferiores calyces paene aequantes, superiores pedicellis breviores, glanduloso-fimbriatae; pedicelli 3.5–5 mm. longi, rufescenti-hirtello-tomentosi; cupula 3.5–4 mm. longa, breviter hirtella v. superne glabra, intus glabra v. subglabra; sepala 10–12 inaequalia, 1.7–3 mm. longa, extus parce pilosa v. glabra, nulla petaloidea; flores viridescentes; stamina 29–40, ad 5.5–6 mm. longa;

pistillum c. 8–9 mm. longum, glabrum, semel vidi pistillum obsoletum stylo subnullo stigmate obsoleto. Drupa ad 9 mm. longa 6 mm. diam., ovata, nigra. Putamen ut in praecedente.

Western Szech'uan: Mupin, alt. 1500–2500 m., May and June 1908 (No. **2851**); southeast of Tachien-lu, alt. 1800–2700 m., May 1908 (No. **909**, mixed with *M. hypoxantha*). Western Hupeh: Chang-yang Hsien, alt. 1200–1800 m., April and July 1907 (No. **63**).

Of the genus *Maddenia* Hooker f. & Thomson (in *Hooker Jour. Bot. and Kew Gard. Misc.* VI. 381 [1854]), only two species, both from the Himalayas, are enumerated in the Index Kewensis and its supplements. Wilson found in China three new species which have the deciduous and closely serrate leaves of *Maddenia*, while the closely related *Pygeum* has persistent entire leaves. These important distinguishing characters are not mentioned by Focke (in Engler and Prantl, *Nat. Pflanzenfam.* III. 1, 51), who also states there that the pistillate flowers have two carpels developing into two drupes. According to Hooker f. & Thomson, however, their structure is quite different. The flowers with two pistils are staminate, and their pistils do not bear styles, but a sessile stigma, and contain only abortive ovules. The twin-fruits which these flowers produce attain only half the size of the normal fruits and form no seeds. The normal fruits originate from perfect flowers with a pistil bearing a long style and contain one seed, as only one of the two ovules develops. In the Chinese species I have never found two pistils in one flower. Flowers without exserted styles can be found only in very small numbers, and as far as I have examined these flowers, they contain only one pistil with a minute style and a rudimentary stigma. The presence of two pistils must therefore be considered as of less importance than the character of the foliage.

A key to all the species is appended here:

Clavis specierum omnium.

Flores racemosi racemis 1.5–5 cm. longis densifloris, pedicellis 1–5 mm. longis.
  Folia subtus haud villosa.
    Folia subtus albicantia glaberrima . . . . . 1. *M. hypoleuca.*
    Folia subtus lutescentia in costa nervisque strigulosa. . . 2. *M. hypoxantha.*
  Folia subtus villosa.
    Folia inciso-duplicato-serrata dentibus angustissimis. . . 3. *M. Wilsonii.*
    Folia ciliato-denticulata. . . . . 4. *M. himalaica.*[1]
Flores subcorymbosi pedicellis bipollicaribus. . . . . 5. *M. pedicellata.*[2]

PRUNUS L.

Subgen. PADUS.

Determined by E. Koehne.

Prunus Buergeriana Miquel in *Ann. Mus. Lugd.-Bat.* II. 92 (1865); *Prol. Fl. Jap.* 24 (1866).

[1] **Maddenia himalaica** Hooker f. & Thomson in *Hooker Jour. Bot. and Kew Gard. Misc.* VI. 381, t. 12 (1854) (descriptio et tabula optimae).
Himalayas: Sikkim, alt. 2400–3000 m., May and August, *J. D. Hooker.*

[2] **Maddenia pedicellata** Hooker f., *Fl. Brit. Ind.* II. 318 (1878).
India: Mishmi Hills, *Griffith.*

Laurocerasus Buergeriana C. K. Schneider, *Ill. Handb. Laubholzk.* I. 646 (1906).

In the Japanese type the axis of the racemes is densely velvety-hirtellous, while it is minutely velvety-puberulous in the following variety which may be described, as the species is new for the Chinese flora.

Prunus Buergeriana var. **nudiuscula** Koehne, n. var.

Arbor 8-metralis trunco 0.3 m. diam.; ramuli vetustiores cinereo-nigricantes, novelli fusci, glabri v. ima basi minutim velutini. Foliorum stipulae ignotae; petioli 10–13 mm. longi, eglandulosi, glabri; lamina subtus in dentibus 2 infimis biglandulosa glandulis planis fuscis, e basi cuneata obovato-oblanceolata v. late oblanceolata (5.5–9 cm.: 2.2–3.3 cm.), acuminata, argute minutim incumbenti-serrulata, supra glabra, subtus glabra v. in nervorum axillis barbulata, membranacea reticulo haud prominente, subtus haud papillosa. Racemi erecti absque pedunculo nudo 0.5–1 cm. longo 4–7 cm. longi, circ. 20–30-flori axi minutim puberulo-velutino; bracteae caducae, ignotae; pedicelli 1–2 mm. longi, glabri; cupula patelliformis vix 4 mm. lata, extus glabra, intus infra medium pilosa, cum sepalis sub fructu persistens; sepala cupulae circ. aequilonga triangularia, obtusa, margine vix denticulato-glandulosa; petala 3 mm. longa, rotundata; stamina 10, majora 4 mm. longa; stylus sepala circ. aequans, ut ovarium glaber. Fructus ignotus.

Western Hupeh: Fang Hsien, woodlands, alt. 1200–1800 m., May 20, 1907 (No. 2834).

Prunus venosa Koehne, n. sp.

Arbor 6–12-metralis trunco 0.20–0.45 m. diam. Ramuli vetustiores cinereo-nigricantes glabri, novelli fusci, glabri v. ima basi minutim velutini. Foliorum stipulae ignotae; petioli 8–13 mm. longi, eglandulosi, glabri; lamina subtus in dentibus 2 infimis biglandulosa glandulis planis majusculis fuscis, e basi late cuneata v. fere rotundata sat anguste obovata v. obovato-oblanceolata (6–11 cm.: 2.5–4.5 cm.), acuminata, breviter argute serrata dentibus latiusculis rectis v. vix sursum curvatis, supra glabra, subtus semper fere in nervorum axillis fasciculato-barbata, initio membranacea, dein cartilaginea, jam sub anthesi venarum reticulo utraque pagina manifeste prominulo, subtus haud papillosa (sub microscopio). Racemi erecti, absque pedunculo 0.8–1.5 cm. longo 3–9 cm. longi, circ. 10–35 flori, axi dense velutino; bracteae caducae, ignotae; pedicelli 1–2.5 mm. longi, glabri; cupula patelliformis 3.5 mm. lata, extus glabra, intus margine excepto pilosa, sub fructu cum sepalis persistens; sepala cupulae circ. aequilonga, triangularia obtusa, crebre denticulato-glandulosa; pe-

tala vix 3 mm. longa, rotundata; stamina 10, majora 5 mm. longa; stylus sepala circ. aequans, ut ovarium glaber. Fructus globosus circ. 6–7 mm. diam.; putamen ovoideo-globosum, paene 5 mm. longum, subapiculatum, haud compressum, obscure carinatum, laeve, pariete tenui fragili.

Western Hupeh: Fang Hsien, woodlands, alt. 1500–1800 m., May 1907 (No. **177**, as to flowering branches; the fruiting branches belong to *P. stellipila*); north and south of Ichang, alt. 900–1500 m., May and July 1907 (No. **91**); Patung Hsien, woods, May (not seen) and July 1907 (No. **91**[a]); Chang-yang Hsien, woods, alt. 1200 m., September 1907 (No. **118**, only a sterile branch seen); north and south of Ichang, woodlands, alt. 900–1500 m., June 1907 (No. **2839**, as to sterile branches; the flowering branches belong to *P. brachypoda* var. *pseudossiori*.)

Prunus stellipila Koehne, n. sp.

Arbor 6–7-metralis trunco 0.3 m. diam.; ramuli vetustiores nigro-fusci glabri, juniores intense fusci, glabri. Foliorum stipulae ignotae; petioli 9–13 mm. longi, eglandulosi, glabri; lamina subtus in dentibus 2 infimis biglandulosa glandulis parvulis planis fuscis, e basi acuta v. fere rotundata elliptica v. anguste oblonga (4.5–10 cm.: 2–3.5 cm.), acuminata v. fere caudata, argutissime serrata dentibus longioribus angustioribus quam in *P. venosa* porrectis v. subincurvis, supra glabra, subtus pilis fasciculatis versus costam densioribus conspersa, cartilaginea venarum reticulo jam sub anthesi utraque pagina manifeste prominulo, subtus (sub microscopio) haud papillosa. Racemi erecti, absque pedunculo brevi circ. 4–5 cm. longi, axi glabro v. minutissime puberulo-velutino; bracteae caducae, ignotae; pedicelli 1–2 mm. longi, glabri; cupula parva, patelliformis, extus glabra, intus fundo pilosa, sub fructu cum sepalis persistens; sepala cupulae circ. aequilonga, triangularia, obtusa, glanduloso-denticulata, glabra; petala ignota; stamina 10 filamentis sub fructu 2 mm. longis; stylus ignotus. Fructus globosus circ. 5 mm. diam.; putamen ovoideo-globosum 4 mm. longum, acutiusculum, haud compressum, validiuscule carinatum laeve, pariete tenui fragili.

Western Hupeh: Fang Hsien, woodlands, alt. 1500–1800 m., August 1907 (No. **177**, as to fruiting branches; the flowering branches belong to *P. venosa*). .

Prunus perulata Koehne, n. sp.

Arbor 10–13-metralis trunco 0.3–0.4 m. diam.; ramuli vetustiores intense fusco-cinerei, plus minus velutini v. glabri, juniores subfusci,

subglabri v. velutini, ut racemorum pedunculi usque ad autumnum basi squamarum imbricatarum involucro 7–20 mm. longo cincti. Foliorum stipulae ignotae; petioli 7–12 mm. longi, eglandulosi, velutini; lamina subtus in dentibus 2 infimis biglandulosa glandulis majusculis planis fuscis, e basi late cuneata v. fere rotundata oblongo-obovata oblanceolata v. elliptica (6.5–11.5 cm.: 2.7–4.2 cm.), breviter v. fere caudato-acuminata, serrulata dentibus brevibus rectis v. subincurvis, supra in nervis velutina ceterum glabra, subtus parce, secus costam dense breviter hirtella, demum subcartilaginea venarum reticulo utraque pagina manifeste prominulo, subtus (sub microscopio) haud papillosa. Racemi erecti, absque pedunculo 1–20 mm. involucrum superante 5–6 cm., fructiferi ad 10 cm. longi, axi velutino; bracteae caducae, ignotae; pedicelli 0.5–1.5 cm. longi, velutini; cupula patelliformis, vix ultra 1 mm. longa, 3.5 mm. lata, extus glabra, intus pilosa, sub fructu cum sepalis persistens; sepala cupulae circ. aequilongae, late triangularia, obtusa, margine glandulosa, glabra; petala circ. 2 mm. longa, obovato-rotundata; stamina 10, majora antheris tantum petala superantia; stylus sepala aequans, ut ovarium glaber. Fructus globosus, circ. 5 mm. diam.; putamen ovatum, paene 5 mm. longum, acutiusculum, vix compressum, obscure carinatum, laeve, pariete tenui fragili.

Western Szech'uan: Ching-chi Hsien, woodlands, alt. 1800 m., May 1908 (No. **2842**); Wa-ssu country, Wên-chuan Hsien, woods, alt. 1800–2100 m., August 1908 (No. **811**).

Prunus microbotrys Koehne, n. sp.

Arbor 10-metralis trunco 0.3 m. diam., glaberrima, sempervirens. Foliorum stipulae ignotae; petioli 5 mm. longi, lutescentes, eglandulosi; lamina e basi eglandulosa rotundata v. subito brevissime contracta ovato-oblonga v. late oblonga (6.5–9 cm.: 3–4 cm.), infra medium latiora, caudato-acuminata, inde a quarta v. tertia parte dentibus brevibus utrinque circ. 8–12 serrata acumine integro, cartilaginea, laevis, supra laete viridis, haud nitens, subtus pallidior. Racemi axillares erecti, absque pedunculo nudo 1 cm. longo 3.5–4 cm. longi, circ. 8–16-flori; bracteae caducae, ignotae; pedicelli 2–3.5 mm. longi, tenues; anthesis mense octobri; cupula patelliformis, vix 2 mm. longa, 4 mm. lata, extus glabra, intus parce pilosa, sepala interstitiis latiusculis sejuncta, triangularia, cupula dimidio breviora, ciliata atque utrinsecus saepe glandulas 1–2 globosas sessiles gerentia; petala circ. 4 mm. longa, 3 mm. lata, irregulariter erosa; stamina

10–12, antheris tantum petala superantia; ovarium pilosiusculum; stylus cupulam vel petala aequans, glaber. Fructus ignotus.

Western Szech'uan: Ya-chu Fu, woodlands, alt. 1200 m., October 1908 (No. **2847**).

From this species *Prunus phaeosticta* Maximowicz differs in the leaves being copiously and minutely punctulate beneath and from *P. spinulosa* Siebold & Zuccarini in its narrower leaves broadest above or at the middle with nearly spinulose teeth curved forward, in the branchlets and racemes slightly pilose and in the stamens exceeding 20 in number; *P. macrophylla* Siebold & Zuccarini, *P. acuminata* Roemer and *P. Jenkinsii* Hooker f. differ in other characters as well as in the shape of their much larger leaves.

Prunus Wilsonii (Diels ms.) Koehne, n. comb.

Padus Wilsonii C. K. Schneider in Fedde, *Rep. Sp. Nov.* I. 69 (1905); *Ill. Handb. Laubholzk.* I. 637 (quoad ramos floriferos; excludendis ramis fructiferis qui ad *P. sericeam* Koehne pertinent) (1906).

The type as described by C. K. Schneider differs in the axis of the racemes, the pedicels, the cupula and the sepals inside and outside being short-hirtellous and becoming glabrous. Besides, the petioles are described as without glands, the leaves as rather remotely serrulate, whitish beneath and the stamens as nearly twice as long as the petals. I have, however, after a comparison with Schneider's specimen, no doubt that the following variety belongs here.

Prunus Wilsonii, var. **leiobotrys** Koehne, n. var.

Arbor 10-metralis trunco 0.45 m. diam. Racemorum axis pedicellique glabri; cupula extus glabra, sed sepala ut in typo utrinque hirtella ac ciliata. Glandulae 1–4 rarius petioli apici, saepius laminae ima basi insidentes; lamina densiuscule serrulata, subtus subcana. Stamina petalis dimidio longiora (stamina 6 mm., petala 4 mm.). Ceterum cf. supra clavem specierum.

Western Hupeh: Hsing-shan Hsien, ravines, rare, alt. 900 m., May 7, 1907 (No. **2835**); South Wushan, woods, alt. 1200 m., June (not seen) and September 1907 (No. **222**); north and south of Ichang, woods, alt. 600–1200 m., September 1907 (No. **127**, as to fruiting branches; the flowering branches belong to *P. sericea*, var. *brevifolia*).

To this variety seems to belong: *Padus napaulensis* (Ser.) C. K. Schneider forma? in Fedde, *Rep. Nov. Sp.* I. 68 (1905), collected in Yunnan by A. Henry (No. 10547). This form differs from *P. Wilsonii*, var. *leiobotrys* only in the fewer and shorter hairs on the under side of the leaves, and might be considered as intermediate between *P. napaulensis* and *P. Wilsonii* (not between *P. napaulensis* and *P. sericea* as Schneider suggests), but in numerous specimens of *P. napaulensis* the leaves are always glabrous beneath.

Prunus sericea Koehne, n. sp.

Prunus napaulensis, var. *sericea* Batalin in *Act. Hort. Petrop.* XIV. 169 (1895).
Padus napaulensis, var. *sericea* C. K. Schneider, *Ill. Handb. Laubholzk.* I. 639 (1906).

Prunus sericea, var. **Batalinii** Koehne, n. var.

Arbor 5-metralis (*Potanin*) v. 13–22-metralis (*Wilson*); ramuli novelli glabri. Folia e basi rotundata v. acuta elliptica v. inverse oblonga (in innovationibus 9.5–13: 3–5.5 cm., in ramulis florentibus paullo minora), longitudine latitudinem saepe triplam aequante, durante evolutione subtus insigniter densissime candido-sericea, postea pilis perturbatis densis, sed paginam inferiorem haud abscondentibus cinereo-hirtella. Racemorum axes pedicellique tenere breviter pilosi, cupulae glabrae, sepala tenere ciliata, ceterum glabra; petala 4 mm. longa, 3 mm. lata, vix eroso-denticulata; stamina 27–32, ad 5 mm. longa; stylus sepalis sublongior. Fructus 16 mm. longus, subglobosus, niger; putamen ovatum, 12.9 mm. longum, 8.6 mm. diam. v. 10.8 mm. longum, 8.8 mm. diam. laeve.

Western Szech'uan: Ya-chu, April 7, 1893, *G. N. Potanin*; Wa-shan, alt. 1200–1800 m., September 1908 (No. **222**[b]). Western Hupeh: Pao-k'ang, 1901 (Veitch Exped. No. 277, fruiting branches; the flowering branches of this No. belong to *P. Wilsonii*).

Prunus sericea, var. **brevifolia** Koehne, n. var.

Arbor 10–13-metralis trunco 0.45–0.60 m. diam.; ramuli juniores basi interdum pulverulento-puberuli, ceterum glaberrimi. Folia e basi plerumque rotundata oblongo-obovata v. obovata v. late ovalia (5.5–9.5 cm.: 2.7–5 cm.), longitudine latitudinis 2.3–2.6 aequante, durante evolutione subtus tomento flavo-cinereo densissimo obtecta, venarum reticulo nigrescente conspicuo, postea ut in typo subtus pilis perturbatis densisque neque vero paginam inferiorem abscondentibus cinereo-hirtella. Racemi 9–12 cm. longi, axi pedicellis cupulis sepalis dense fuscescenti-hirtellis; pedicelli 4–5 mm. longi; cupula 4 mm. longa, 5 mm. lata, profunda semiglobosa, intus glabra (ut in omnibus *Pachypodii* speciebus); sepala late breviter lingulata, apice rotundata, dense ciliata, glandulisque singulis margine obsita; in floribus nondum evolutis petala 4 mm., stamina 32 circ. 5 mm. longa, stylus sepala haud aequans, glaber. Fructus ignotus.

Western Hupeh: north and south of Ichang, woods, alt. 600–1200 m., May 1907 (No. **127**, as to flowering branches; the fruiting branches belong to *P. Wilsonii*, var. *leiobotrys*).[1]

[1] Another new variety, but not represented in the Wilson collection is the following:

Prunus sericea, var. **septentrionalis** Koehne, n. var.

Racemi axis pedicellique glaberrimi.

Northern Shensi: In-kia-po, *G. Giraldi* (No. 6081.)

Prunus rufomicans Koehne, n. sp.

Arbor 20–30-metralis trunco 0.5–0.8 in diam.; ramuli vetustiores intense fusci, glabri, juniores fusci, glabri. Foliorum stipulae ignotae; glandulae rarius petiolo, saepius 1–2 laminae basi insidentes, crassae; petioli in ramis fertilibus 5–10 mm., in sterilibus 12–14 mm. longi, glabri v. parce hirtelli; lamina e basi rotundata v. late cuneata in ramis fertilibus lanceolata v. oblongo-lanceolata (4.5–6 cm.: 1.5–2 cm.), in sterilibus late ovato-elliptica v. obovata (9–10 cm.: 4.5–5.8 cm.), subacuminata, argute dense v. subremote serrulata, supra glabra, subtus tomento sericeo paginam inferiorum perfecte abscondente densissimo intense rufo-ferrugineo submicante obtecta, supra venis impressis reticulato-rugosa, subtus nervis primariis valide prominentibus, subtus (sub microscopio) inter stomata vix papillosa, sed stomata papillis arcte confertis circumvallata fere abscondita. Racemi fructiferi circ. 12 cm. longi, glabri; pedicelli 3–4 mm. longi, ut axis insigniter incrassati pallideque lenticellati; cupulae basis persistens, intus glaberrima. Fructus subglobosus, circ. 10 mm. diam.; putamen 9 mm. longum, 7 mm. diam., ovatum, acutum, obscure carinatum, laevissimum, durum.

Western Szech'uan: Mupin, woods, alt. 1500–1600 m., October 1908 (No. **1078**).

Prunus brachypoda Batalin in *Act. Hort. Petrop.* XII. 166 (1892); in *Gartenfl.* XLII. 330 (1893).

Padus brachypoda C. K. Schneider in Fedde, *Rep. Nov. Sp.* I. 69 (1905); *Ill. Handb. Laubholzk.* I. 638 (1906.) (excl. var. *pubigera* quae speciem propriam sistit).

The varieties of this species may be described as their characters are partly rather uncertain.

Prunus brachypoda, var. **pseudossiori** Koehne, n. var.

Arbor 5–20-metralis trunco 20–60 cm. diam.; ramuli juveniles glabri v. raro pulverulento-puberuli. Petioli 11–40 mm. longi, glabri, semper fere biglandulosi; lamina e basi manifeste cordata v. in ramulis floralibus rotundata anguste v. late oblonga, ovato-oblonga, obovato-oblonga (3–12 cm. longa, 0.8–5.5 cm. lata), longiuscule argute acuminata, argutissime serrata dentibus angustis tenuiter acuminatis longiusculis (sed minoribus quam in *P. ssiori*), porrectis v. subincurvis, subtus in nervorum axillis barbata ceterum glabra, intermixtis saepe foliis omnino glabris, subtus parum pallidior quam supra reticulo tenerrimo intensius colorato, subtus nunc manifeste nunc haud pa-

pillosa. Racemi absque pedunculo foliato 11–23 cm. longi, sec. cl. *Wilson* plus minus penduli, glabri v. (saepe in racemis ex eodem ramo primario ortis) pulverulento-velutini; pedicelli 2–6 mm. longi; cupula 2–3 mm. longa, 3–4.5 mm. lata, intus infra medium villosa; sepala breviter glanduloso-fimbriata; petala 2–4.5 mm. longa, rotundata v. obovato-rotundata, vix eroso-denticulata; stamina 18–33, majora petalis parum v. paullulum longiora; pistillum circ. 4 mm. longum, glabrum, stylus sepala circ. aequans. Fructus ut videtur 5–7 mm. diam.; putamen 4–5.5 mm. longum, 4–5 mm. diam., hinc carinatum, obsoletissime rugosum, durum.

Western Szech'uan: southeast of Tachien-lu, woodlands, alt. 1500–2200 m., June 1908 (No. **2843**); Nin-tou-shan, west of Kuan Hsien, woodlands, alt. 1800 m., June 20, 1908 (No. **2846**); Mupin, woodlands, alt. 1500–1800 m., August 1908 (No. **899**); Nanch'uan, 1901, *A. von Rosthorn*; without locality, *A. Henry* (Nos. 5739, 5763). Western Hupeh: Hsing-shan Hsien, woods, alt. 1200–2300 m., July and August 1907 (No. **190**); Changyang Hsien, woods, alt. 1200–1500 m., September 1907 (No. **115**); north and south of Ichang, woodlands, alt. 900–1500 m., June 1, 1907 (No. **2839**, as to flowering branches; the fruiting branches belong to *P. venosa*); without locality, *A. Henry* (No. 5988). Northern Shensi: *G. Giraldi* (Nos. 1141, 5200).

This variety is often confounded in collections with *P. ssiori* F. Schmidt

Prunus brachypoda, var. **microdonta** Koehne, n. var.

Arbor 10-metralis trunco 40 cm. diam. Petioli 12–26 mm. longi, biglandulosi; lamina e basi rotundata v. vix subcordata oblonga v. lanceolata (3.5–11 cm. longa, 1.3–3.3 cm. lata), longe paullatim v. subcaudato-acuminata, minutim serrulata dentibus saepe quasi ad mucronem reductis porrectis v. incumbentibus, subtus glabra v. in axillis nervorum barbata, sub microscopio subtus scabrido-papillosa. Racemi 14–18 cm. longi, glabri; petala 3 mm. longa, 2.5 mm. lata; stamina c. 29 petalis parum longiora; pistillum 3 mm. longum. Putamen 4–5 mm.: 4.5–5 mm.: 3.5 mm. Cetera ut in var. *pseudossiori*.

Western Hupeh: Chang-lo Hsien, woods, alt. 1200–1500 m., April and September 1907 (Nos. **2836, 2838**); without locality, 1901 (Veitch Exped. No. 2255).

Prunus obtusata Koehne, n. sp.

Arbor 8–13-metralis trunco 30–50 cm. diam., ramuli juveniles

basi glabri, apice pulverulento-velutini, vetustiores intense fusci haud nitentes, lenticellis pallidis sparsis. Petioli 10–20 mm. longi, glabri, apice plerumque 1–2-glandulosi; lamina e basi rotundata v. vix subcordata oblonga v. inverse oblonga v. ovato-oblonga (sub anthesi 3–7 cm. longa 1.3–3.2 cm. lata), nullo modo acuminata, obtusa v. obtusissima v. subemarginata, minutissime serrulata dentibus saepe ad glandulam reductis, glaberrima, supra laete viridis, subtus parum pallidior reticulo tenerrimo intensius colorato, epapillosa. Racemi erecto-patentes, absque pedunculo foliato 6–20 cm. longi, pulverulento-velutini v. puberuli; pedicelli 1–6 mm. longi; cupula 2 mm. longa, 3 mm. lata, inferne pulverulenta, ceterum glabra, intus infra medium villosa; sepala 1 mm. longa, obtusa, breviter glanduloso-fimbriata; petala 3–5 mm. longa, rotundata, subintegra; stamina 20–29, majora petala parum superantia v. aequantia v. iisdem triente breviora; pistillum 3–4.5 mm. longum, glabrum, stylus sepala circ. aequans. Fructus ignotus.

Western Szech'uan: Tachien-lu, woods, alt. 1800 m., May 1908 (No. **977** as to flowering branches; the fruiting branches belong to *P. bicolor*); Mupin, woodlands, alt. 1500–1800 m., June 1908 (No. **2845**, as to flowering branches; the fruiting branches belong to *P. pubigera*); Wa-shan, woodlands, alt. 1800–2100 m., June 1908 (No. **2844**).

This species seems to bear in its habit a rather striking resemblance to certain forms until now referred to *P. demissa* Walpers.

Prunus pubigera Koehne, n. sp.

Padus brachypoda, var. *pubigera* C. K. Schneider in Fedde, *Rep. Nov. Sp.* I. 70 (1905); *Ill. Handb. Laubholzk.* I. 638 (1906).

Arbor 6–20-metralis trunco 20–100 cm. diam.; ramuli juveniles fuscescentes, puberulo-velutini, vetustiores validi, nigricantes v. purpureo-fusci, plus minus glabrati, lenticellis ovalibus pallidis; gemmae 5–8 mm. longae, conicae, fuscae, glabrae. Petioli 8–27 mm. longi, plerumque puberulo-velutini, saepissime 1–2-glandulosi; lamina e basi cuneata v. rotundata v. cordata late inverse oblonga v. obovato-oblonga v. obovata (3–11.5 cm. longa 1.2–6 cm. lata), breviter leviter v. parum acuminata, apice obtusiuscula valide mucronata, minutim v. minutissime serrulata dentibus saepe fere ad glandulam reductis, supra glabra v. in costa pulverulenta, subtus glabra v. in nervorum axillis subbarbata, supra laete viridis, subtus manifeste pallidior v. subalbicans venis validioribus prominulis reticulo pallido v. rarissime intensius colorato, subtus haud v. breviter scabrido-papillosa. Racemi absque pedunculo foliato 7–14 cm. longi, puberuli v. pulveru-

lenti v. glabri; pedicelli 2–5 mm., raro infimi ad 8 mm. longi; cupula 3 mm. longa, 4–4.5 mm. lata, intus infra medium villosa; sepala vix ultra 1 mm. longa, obtusa, breviter glanduloso-fimbriata, ceterum glabra v. tenerrime ciliata; petala 4–5 mm. longa, 4 mm. lata, subrotundata v. obovato-rotundata, integra v. leviter eroso-denticulata; stamina 21–28, majora petalis triente v. paene dimidio breviora; pistillum 4–5 mm. longum, glabrum, stylus sepala parum superans. Fructus c. 5–8 mm. diam. ut videtur; putamen 4–6 mm. longum, 4–5 mm. diam., obsoletissime rugosum, durum.

Prunus pubigera, var. **Potaninii** Koehne, n. var.

Petioli puberuli; folia innovationum pleraque basi subcordata v. cordata, pleraque late inverse oblonga intermixtis paucissimis obovatis, omnia subtus haud v. vix papillosa. Sepala ciliata; petala 5 mm., stamina majora 3 mm. longa. Putamen 4–5 mm. longum, 4–5 mm. diam.

Tibet: *G. N. Potanin.* Western Szech'uan: southeast of Tachien-lu, woods, alt. 1800–2100 m., June and September 1908 (No. **980**).

Prunus pubigera, var. **Prattii** Koehne, n. var.

Petioli subglabri v. glabri; folia innovationum pleraque basi cuneata v. rotundata, intermixtis vix ullis subcordatis v. obovatis, omnia subtus epapillosa. Racemi puberuli v. glabri; flores ignoti. Putamen 4–6 mm. longum, 4–5 mm. diam.

Western Szech'uan: Tachien-lu, alt. 2700–4100 m., *A. E. Pratt* (No. 94); Mupin, woodlands, alt. 1500–1800 m., June 1908 (No. **2845**, as to fruiting branches; the flowering branches belong to *P. obtusata*.). Western Hupeh: Fang Hsien, woods, alt. 1500–1800 m., August 1907 (No. **181**, remarkable for its glabrous racemes); Hsing-shan Hsien, woods, alt. 1200–1500 m., September 1907 (No. **2837**).

Prunus pubigera, var. **obovata** Koehne, n. var.

Petioli glabri; folia pleraque e basi vix unquam subcordata obovata, subtus haud v. vix papillosa. Racemi glabri v. puberuli; petala 4–5 mm. longa; stamina majora vix ultra 3 mm. longa. Putamen 5.5 mm. longum, 5 mm. diam.

Western Szech'uan: Wa-ssu country, Wên-chuan Hsien, woods, alt. 1800–2400 m., June 7, 1908 (No. **1045**). Western Hupeh: Fang Hsien, woods, alt. 1500–2100 m., August 1907 (No. **186**, with glabrous racemes).

This variety seems similar in its habit to *P. virginiana* Linnaeus.

Prunus bicolor Koehne, n. sp.

Ramuli novelli nigricantes, densissime puberulo-velutini, vetustiores vix glabrati lenticellis pallidis; gemmae 3.5–8 mm. longae, pallide fuscae, glabrae. Petioli 15–25 mm. longi, superiore pagina pulverulento-puberuli, eglandulosi; lamina e basi rotundata v. subcordata obovato-oblonga (5.3–9.8 cm. longa 2.5–4.5 cm. lata), leviter breviter acuminata apice obtusiuscula valide mucronata, minutim serrata dentibus angustissimis porrectis v. subincurvis, supra in costa pulverulenta ceterum glabra, subtus glaberrima, supra intense viridis reticulo subimpresso, subtus manifeste albicans, costa nervisque ochraceis reticulo nigrescente maxime manifesto, sub microscopio circa stomata subpapillosa papillis scabridis. Racemi erecto-patentes, absque pedunculo foliato 13 cm. longi, pulverulento-velutini; pedicelli 2–4.5 mm. longi. Flores ignoti. Cupulae basis sub fructu persistens, intus glaberrima. Fructus ut videtur 5–6 mm. diam.; putamen 4.3 mm. longum, 4 mm. diam., carinatum, obsoletissime rugosum.

Western Szech'uan: Tachien-lu, woods, alt. 1800 m., September 1908 (No. **977**, as to fruiting branches; the flowering branches belong to *P. obtusata*.).

Prunus velutina Batalin in *Act. Hort. Petrop.* XIV. 186 (1895.)

Padus velutina C. K. Schneider in Fedde, *Rep. Nov. Sp.* I. 69 (1905); *Ill. Handb. Laubholzk.* I. 638 (1906).

Western Hupeh: north and south of Ichang, woodland, alt. 900–1800 m., May and September 1907 (No. **2840**); without locality, 1901 (Veitch Exped. No. 1789); *A. Henry* (No. 5774). Northern Shensi: *G. Giraldi* (No. 4931).

Prunus Grayana Maximowicz in *Bull. Acad. Sci. St. Pétersbourg*, XXIX. 107 (1884); in *Mél. Biol.* XI. 704 (1883).

Prunus Padus, var. *japonica* Miquel in *Ann. Mus. Lugd.-Bat.* II. 92 (1865)
Padus Grayana C. K. Schneider, *Ill. Handb. Laubholzk.* I. 640 (1906).
Padus acrophylla C. K. Schneider in Fedde, *Rep. Nov. Sp.* I. 70 (1905); *Ill. Handl. Laubholzk.* I. 640 (1906.) (Forsan ex descriptione huc etiam ducenda, quamvis cupulae basis sub fructu persistens ab autore dicatur pilosa.)

Petioli 5–13 mm. longi, eglandulosi; glandulae 1–3 marginales laminae dentibus infimis subtus insidentes, complanatae; folia e basi rotundata v. vix subcordata late oblonga v. obovato-oblonga v. ovata, caudato-acuminata, argutissime serrata dentibus tenuissime acuminatis, subtus epapillosa. Pedicelli 2–13 mm. longi; cupula intus glaberrima; sepala integra, interdum margine parce glandulifera, ten-

uiter ciliata; petala 3–5 mm. longa, ima basi lanato-barbata; stamina 23–32, majora petala aequantia v. superantia, 5–8 mm. longa; stylus stamina circ. aequans.

Western Hupeh: Chang-yang Hsien, woodlands, alt. 1400 m., May 1907 (No. 2841); without locality, 1901 (Veitch Exped. No. 604); *A. Henry* (No. 6327, according to C. K. Schneider in *Herb. Reg. Berol.*, probably to be referred to *P. ssiori* F. Schmidt, but it is *P. Grayana*). Japan: *Maximowicz* (Iter Sec. 1861), 1862, *Hilgendorf* (No. 192), *J. J. Rein*, *K. Shirai*, *K. Saida*, *U. Faurie* (Nos. 376, 5009, 6054).

This species differs in several characters from the section *Leptopodium*, though in the herbarium it is often confounded with the very distinct *P. ssiori*. On account of its glands, the cupula glabrous on the inside and the entire or nearly entire sepals it seems to belong to the section *Pachypodium* rather than to *Leptopodium*.

Prunus laxiflora Koehne, n. sp.

Arbor 10-metralis trunco 40 cm. diam.; ramuli juveniles puberuli, vetustiores vix glabrati, fusci v. nigricantes, lenticellis paucis parvis. Stipulae 5–10 mm. longae, anguste lineares, pubescentes; petioli 7–12 mm. longi, dense pubescentes, eglandulosi; glandulae 2 marginales dentium infimarum paginam inferiorem occupantes, complanatae; lamina e basi late cuneata late v. obovato-oblonga (sub anthesi 3.5–6 cm. longa 1.6–2.7 cm. lata), longe acuminata, inciso-subduplicato-serrata, dentibus longis tenuissime acuminatis, supra in costa pubescenti-villosa, ceterum glabra, subtus in costa densius, in nervis laxius sericeo-villosa, ceterum glabra, supra laete viridis, subtus vix pallidior reticulo intensius colorato, epapillosa. Racemi absque pedunculo efoliato, sed interdum hypophylla 1–2 parva gerente, 7–17 mm. longo 4.5–7 cm. longi, c. 6–12 flori, laxi, axi ac pedunculo adpresso-pubescente; bracteae infimae 10–4 mm. longae, superiores usque ad 1 mm. longitudinis decrescentes, omnes persistentes; pedicelli infimi 18 mm., supremi 2 mm. longi, laxe villosi; cupula circ. 3 mm. longa ac lata, semi-globoso-campanulata, extus basi tantum pilosa, intus glaberrima; sepala cupulae aequilonga, triangularia acuta, ut videtur horizontaliter patentia, longiuscule glanduloso-fimbriata; petala fere 7 mm. longa, 4 mm. lata, ovalia, margine leviter eroso-undulata; stamina 22–26, majora circ. 4 mm. longa, petalis triente breviora; stylus stamina aequans v. paullo superans, ut ovarium glaber. Fructus ignotus.

Western Hupeh: Hsing-shan Hsien, woods, alt. 1700 m., May 1907 (No. 62, as to flowering branches; the fruiting branches belong to *P. discadenia* Koehne, a new species of the section *Phyllomahaleb*.).

DISPOSITIO PRUNI SUBGEN. PADI ET CLAVIS SPECIERUM CHINENSIUM.

Calyx fructifer totus persistens; bracteae caducae; stylus brevis.

Sect. I. CALYCOPADUS.

* Pedunculi racemorum foliati (intermixtis interdum nonnullis nudis); folia decidua v. sempervirentia. (Species omnes Americanae.)

Subsect. 1. CAPOLLINIA.

** Pedunculi semper nudi; folia decidua. . . . . Subsect. 2. CALYCINIA.

† Ramuli racemorumque pedunculi basi haud involucrati.

Folia subtus glabra v. haud ubique pilosa.

Venarum reticulum supra nunquam, subtus nonnisi post anthesin prominulum. Folia supra medium latiora, incumbenti-serrulata. *P. Buergeriana.*

Venarum reticulum jam durante anthesi utraque pagina manifeste prominulum; folia subtus in nervorum axillis multis barbulata ceterum glabra, majora latiora (6–11 cm.: 2.5–4.5 cm.) quam in *P. stellipila*, brevius serrata dentibus latioribus . . . . . *P. venosa.*

Folia subtus ubique, versus costam densius, pilis fasciculatis conspersa, minora angustiora (4.5–10 cm.: 2–3.5 cm.) quam in *P. venosa*, longius serrata dentibus angustioribus . . . . . *P. stellipila.*

†† Ramuli ac pedunculi basi usque ad autumnum squamis involucrati,. involucro 7–20 mm. longa . . . . . *P. perulata.*

Calyx fructifer (ima basi excepta) deciduus . . . . . Sect. 2. GYMNOPADUS.

* Sempervirentes. Pedunculi nudi; bracteae caducae; stylus brevis.

Subsect. 3. LAUROCERASUS.

Petioli eglandulosi. Folia plerumque ovato-oblonga, caudato-acuminata, 6–9 cm. longa. Racemi glabri . . . . . *P. microbotrys.*

Petioli glandulosi. Folia oblonga, acuminata, 10–18 cm. longa. Racemi pubescentes . . . . . *P. macrophylla* [1]

** Folia decidua.

† Pedunculi foliati (intermixtis interdum nonnullis nudis); bracteae caducae. . . . . Subsect. 4. EUPADUS.

‡ Pedicelli fructiferi insigniter incrassati pallide lenticellati. Stylus brevis. (Folia in speciebus chinensibus subtus aequaliter pilosa.)

Ser. 1. PACHYPODIUM.

Pagina inferior inter pilos nunquam rufos mox vel ab initio optime conspicua.

Pili transversi paralleli breves adpressi submicantes. . *P. Wilsonii.*

Pili mox subhirti perturbati (initio tantum tomentum sericeum candidum densissimum sistentes) . . . . . *P. sericea.*

[1] **Prunus macrophylla** Siebold & Zuccarini in *Abhand. Akad. Münch.* IV. pt. ii. 122 (*Fam. Nat. Fl. Jap.* 14) (1843).

Laurocerasus macrophylla C. K. Schneider, *Ill. Handb. Laubholzk.* I. 647, fig. 355 l. (1906).

So far only reported from eastern China (prov. Kwangtung).

Pagina inferior usque ad mensem octobrem pilis perfecte abscondita, pilis tomentum sericeum intense rufo-ferrugineum submicantem sistentibus . . . . . *P. rufomicans.*

‡‡ Pedicelli fructiferi nec incrassati nec lenticellati.

Stylus brevis . . . . . Ser. 2. LEPTOPODIUM.

Putamen manifeste rugosum. Petala 6–8 mm. longa staminibus duplo longiora . . . . . *P. Padus.*[1]

Putamen laeve v. obsolete rugosum. Petala 3–4.5, raro ad 5 mm. longa, staminibus aequilonga v. breviora, rarissime manifeste longiora.

Folia in acumen argutum plerumque longum producta.

Putamen 7 mm. longum. Folia basi nonnulla rotundata, plerague vero profunde cordata, argutissime serrata dentibus angustis longis tenuissime acuminatis, subtus nunquam papillosa; petioli 15–42 mm. longi, valide 2- (v. 1–6)-glandulosi. Racemi 10–17 cm. longi, glabri; pedicelli 4–13 mm. longi; petala 4.5 mm. longa, staminibus aequilonga . . . . . *P. ssiori.*[2]

Putamen 4–5.5 mm. longum. Folia basi rotundata v. haud raro manifeste cordata, argute v. minutim serrata dentibus semper minoribus quam in *P. ssiori*, subtus nunc papillosa nunc epapillosa; petioli 11–24 mm. longi, plerique glandulis 1–2 debilibus muniti. Racemi 12–23 cm. longi, nunc glabri nunc puberuli; pedicelli 2–6 mm. longi; petala 2–4.5 mm. longa, staminibus aequilonga v. vix breviora . . . . . *P. brachypoda.*

Folia leviter breviter v. haud acuminata, obtusiuscula mucronata v. obtusa v. subemarginata, semper brevissime v. minutim serrulata. Putamen 4–6 mm., raro 7 mm. longum.

Folia subtus glaberrima v. nonnisi in nervorum axillis barbata; petala staminibus aequilonga v. longiora.

Calyx intus pilosus, quare etiam calycis basis sub fructu persistens intus hirta. Petioli glandulosi.

Folia obtusa v. subemarginata, subtus glaberrima ac vix pallidiora quam supra, venarum reticulo tenerrimo haud prominulo intensius colorato . . . . . *P. obtusata.*

Folia plerumque leviter breviter acuminata apice obtusiuscula mucronata, subtus glaberrima v. in axillis paullulum

[1] **Prunus Padus** Linnaeus, *Spec.* 473 (1753).
Prunus racemosa Lamarck, *Fl. Franç.* III. 107 (1778).
Padus vulgaris Borkhausen, *Forstbot.* II. 1426 (1803).
Cerasus Padus De Candolle, *Fl. Franç.* IV. 580 (1805).
Padus racemosa C. K. Schneider, *Ill. Hand. Laubholzk.* I. 639, fig. 351 a–h, 352 a (1906).
So far only reported from northern China, Mongolia, Shensi, and Chili.

[2] **Prunus ssiori** F. Schmidt in *Mém. Acad. Sci. St. Pétersbourg*, sér. 7, XII. No. II. 124 (*Reis. Amurland*) (1868).
Padus ssiori C. K. Schneider, *Ill. Handb. Laubholzk.* I. 647 (1906).
Of this species I have seen specimens from Saghalin and Japan, and it is also reported from southern Mandshuria, but has not yet been collected in other parts of the Chinese Empire. C. K. Schneider has referred several specimens of *P. Grayana* in the Berlin herbarium to *P. ssiori*, but these two species, though similar in the serration of the leaves, are otherwise very different and can always be easily distinguished with certainty. It is less easy to distinguish *P. ssiori* from *P. brachypoda*, var. *pseudossiori.*

barbata atque plerumque manifeste pallidiora quam supra, nervis venisque primariis subtus prominulis, reticulo plerumque pallido rarissime intensius colorato. *P. pubigera.*

Calycis basis sub fructu persistens intus glaberrima. Petioli eglandulosi. Folia subtus glaberrima, pallida albicantia, costa nervis ochraceis, reticulo multo intensius colorato distinctissimo . . . . . *P. bicolor.*

Folia tota pagina inferiore laxe pilosa pallida, reticulo pallido demum prominulo; petala staminibus triente breviora.
P. velutina.

Stylus longus. . . . . Ser. 3. GRAYOPADUS.
P. Grayana.

†† Pedunculi nudi; bracteae persistentes; stylus longus.
Ser. 4. MAACKIOPADUS.

A specie altera[1] hujus sectionis foliis subtus eglandulosis, racemis 4–7 cm. longis laxifloris, sepalis fimbriatis stylo glabro differt.
P. laxiflora.

XX. SPECIERUM DISTRIBUTIO SYSTEMATICA

Sect. 1. **CALYCOPADUS** Koehne in *Abhand. Bot. Ver. Brandenburg*, LII. 107 (1910).

Calyx persistens.

Subsect. 1. CAPOLLINIA Koehne in *Abhand. Bot. Ver. Brandenburg*, LII. 106 (1910).

Sect. Eupadus Koehne, *Deutsche Dendr.* 303 (pro parte) (1893).

Species sempervirentes vel foliis deciduis, venarum reticulo saepe indole rhombica. Pedunculi typice foliati; bracteae caducae. Calyx fructifer persistens. Stamina circ. 15–25 (an semper?); stylus brevis.

Species omnes americanae: *P. salicifolia* Kunth (Bolivia, Peru, Ecuador, Columbia, an Mexico?), *P. Capollin* (De Candolle) Koehne (Mexico), *P. serotina* Ehrhart cum var. *neomontana* Small (Amer. bor. ut sequentes), *P. eximia* Small, *P. alabamensis* Mohr, *P. Cuthbertii* Small, *P. australis* Beadle.

Subsect. 2. CALYCINIA Koehne in *Abhand. Bot. Ver. Brandenburg*, LII. 107 (1910).

Folia decidua, venarum reticulo isodiametrico, subtus in dentibus infimis biglandulosa. Pedunculi nudi; bracteae caducae. Calyx persistens; stamina 10(–12); stylus brevis.

Species omnes asiaticae: *P. undulata* Roemer (inde a Bengalia or. usque ad Nepal), *P. venosa* Koehne (China), *P. stellipila* Koehne (China), *P. perulata* Koehne (China), *P. Buergeriana* Miquel (China, Japonia).

[1] **Prunus Maackii** Ruprecht in *Bull. Acad. Sci. St. Pétersbourg*, XV. 361 (1857).
Laurocerasus Maackii C. K. Schneider, *Ill. Handb. Laubholzk.* I. 645, fig. 352 h–i (1906).

Known from Amurland and Mandshuria, but not yet reported from other regions of the Chinese Empire. It differs from *P. laxiflora* in its leaves being glandular punctate beneath, in the dense racemes, 2–3 cm. long, the bracts 1–2 mm. long, the scarcely fimbriate sepals and in the style being loosely villose below the middle.

Sect. 2. **GYMNOPADUS** Koehne in *Abhand. Bot. Ver. Brandenburg*, LII. 107 (1910).

Calyx sub fructu deciduus.

Subsect. 3. LAUROCERASUS (Roem.) Koehne, *Deutsche Dendr.* 303 (excl. *P. Maackii*) (1893).

Sempervirentes, venarum reticulo isodiametrico. Pedunculi nudi; bracteae caducae. Calyx fructifer deciduus. Stylus brevis.

Species americanae: *P. brasiliensis* Roemer (Brasilia), *P. Brittoniana* Rusby (Bolivia), *P. Pearcei* Rusby (Bolivia), *P. guanaiensis* Rusby (Bolivia), *P. integrifolia* Presl (Peru, Ecuador), *P. occidentalis* Roemer (Antillae), *P. sphaerocarpa* Roemer (Antillae, an Mexico?), *P. reflexa* Roemer (Antillae), *P. samydoides* Roemer (Mexico), *P. laurifolia* Schlechtendal (Mexico), *P. ilicifolia* Roemer (California), *P. Lyonii* Sargent [1] (California), *P. caroliniana* Aiton (Amer. bor.).—Mediterraneae et macaronesicae: *P. Laurocerasus* Linnaeus, *P. lusitanica* Roemer.—Asiaticae: *P. javanica* Miquel (Java), *P. martabanica* S. Kurz (Java), *P. acuminata* Roemer (inde a Nepal usque ad Assam), *P. Jenkinsii* Hooker f. (Assam), *P. phaeosticta* Maximowicz (Khasia, China), *P. microbotrys* Koehne (China), *P. macrophylla* Siebold & Zuccarini (China, Japonia), *P. spinulosa* Siebold & Zuccarini (Japonia).

Subsect. 4. EUPADUS Koehne in *Abhand. Bot. Ver. Brandenburg*, LII. 107 (1910).

Sect. Eupadus Koehne, *Deutsche Dendr.* 303 (excl. *P. serotina*) (1893).

Folia decidua, venarum reticulo isodiametrico. Pedunculi typice foliati; bracteae caducae. Calyx fructifer deciduus. Stamina 20–35.

Ser. 1. PACHYPODIUM Koehne in *Abhand. Bot. Ver. Brandenburg*, LII. 107 (1910).

Racemorum axes stricti pedicellique fructiferi insigniter incrassati, pallide lenticellati. Folia semper subtus valide papillosa, saltem stomata papillis arcte confertis circumvallata abscondita. Cupula semper intus glaberrima; stylus brevis; stamina plerumque ultra 30.

Species omnes asiaticae: *P. napaulensis* Steudel (Himalaya,) *P. bracteopadus* Koehne (Himalaya), *P. Wilsonii* (Diels apud C. K. Schneid.) Koehne (China), *P. sericea* (Batalin) Koehne (China), *P. rufomicans* Koehne (China).

Ser. 2. LEPTOPODIUM Koehne in *Abhand. Bot. Ver. Brandenburg*, LII. 107 (1910).

[1] **Prunus Lyonii** (Eastwood) Sargent, nov. comb.
Prunus occidentalis Lyon in *Bot. Gazette*, xi. 202, 333 (not Swartz) (1886).—Greene in *Bull. Cal. Acad.* ii. 395.
Prunus ilicifolia, var. *occidentalis* Brandegee in *Proc. Cal. Acad.* ser. 2, i. 209 (1888).
Prunus ilicifolia, var. *integrifolia* Sudworth in *Garden and Forest*, iv. 51 (1891).—Sargent, *Silva N. Am.* iv. 54.—Jepson, *Silva of California*, 253.
Prunus integrifolia (Sudworth) Sargent, *Man.* 531, f. 441 (not Walpers) (1905).
Cerasus Lyonii Eastwood, *Trees of California*, 54 (1905).
Laurocerasus integrifolia (Sudworth) C. K. Schneider, *Ill. Handb. Laubholzk.* i. 648 (1906).
Laurocerasus Lyonii (Eastwood) Britton, *Trees N. Am.* 512 (1908).

C. S. S.

Racemorum fructiferorum axes pedicellique haud vel vix incrassati nec insigniter pallide lenticellati. Folia subtus plus minus vel haud papillosa. Cupula intus plerumque saltem basi pilosa, rarius glabra. Stamina (14–)20–35. Stylus brevis.

Species americanae: *P. virginiana* Roemer (Amer. bor.), *P. demissa* Nuttall apud Torrey and Gray (Amer. bor.). — Europaeo-asiaticae: *P. Padus* Linné (inde ab Europa usque ad Sachalin). — Asiaticae: *P. cornuta* Steudel (inde ab Afghanistan usque ad Sikkim), *P. anadenia* Koehne (Afghanistan), *P. glaucifolia* Koehne (Himalaya), *P. diversifolia* Koehne (Korea). *P. brachypoda* Batalin (China, Tibet), *P. velutina* Batalin (China), *P. bicolor* Koehne (China), *P. ssiori* F. Schmidt (Mandschuria, Sachalin, Japonia).

An hujus sedis?: species koreanae *P. seoulensis* Léveillé, *P. diamantinus* Léveillé, *P. Fauriei* Léveillé.

Ser. 3. GRAYOPADUS Koehne in *Abhand. Bot. Ver. Brandenburg*, LII. 107 (1910).

Sect. Eupadus Koehne, *Deutsche Dendr.* 303 (pro parte) (1893).

Axes racemorum pedicellique fructiferi nec incrassati nec lenticellati. Folia subtus haud papillosa in dentibus infimis biglandulosa (ut in subsect. *Calycinia*). Cupula intus glaberrima; stamina circ. 22–26; stylus longus.

Species asiatica: *P. Grayana* Maximowicz (China, Japonia) cum *Padus acrophylla* C. K. Schneider chinensi verisimillime nullo modo diversa.

Subsect. 5. MAACKIOPADUS Koehne in *Abhand. Bot. Ver. Brandenburg*, LII. 107 (1910).

Folia decidua venarum reticulo isodiametrico. Pedunculi nudi; bracteae persistentes. Calyx magis campanulatus quam in subsect. 1–4, fructifer deciduus; stamina c. 20–30; stylus longus stamina aequans v. paullo superans.

Species omnes asiaticae: *P. Maackii* Ruprecht (Mandschuria, regio amurensis), *P. laxiflora* Koehne (China).

AQUIFOLIACEAE.

ILEX L.

Determined by TH. LOESENER.

Ilex rotunda Thunberg, *Fl. Jap.* 77 (1784). — Loesener in *Nov. Act. Leop.-Carol.* LXXVIII. 106 (1901).

Kiangsi: Kiu-kiang, thickets of foot hills, alt. 300 m., August 2, 1907 (No. **1611**).

Ilex purpurea Hasskarl, var. *a* **Oldhamii** Loesener in *Nov. Act. Leop.-Carol.* LXXVIII. 112 (1901).

Ilex Oldhamii Miquel in *Ann. Mus. Lugd.-Bat.* III. 105 (1867).

Western Hupeh: north and south of Ichang, woodlands, alt. 300–1000 m., June and December 1907 (Nos. **689**, **3097**). Western Szech'uan: Kiu-ting Fu, thickets, alt. 600–900 m., November 1908 (No. **3096**).

Ilex pedunculosa Miquel, forma, *β* **continentalis** Loesener in *Nov. Act. Leop.-Carol.* LXXVIII. 108 (1901).

Kiangsi: Kuling, side of streams, alt. 1200 m., July 30, 1907 (No. **1609**). Western Hupeh: north and south of Ichang, woodlands, alt. 900–1500 m., June 1907 (No. **477**); Patung Hsien, woodlands, alt. 300–900 m., June 1907 (No. **3095**).

Ilex yunnanensis Franchet, *Pl. Delavay.* II. 128 (1899). — Loesener in *Nov. Act. Leop.-Carol.* LXXVIII. 131 (1901).

Western Szech'uan: Wa-ssu country, Wên-chuan Hsien, thickets, alt. 1500–2000 m., June and September 1908 (Nos. **1024**, **3092**, **3094**); Nin-tou-shan, west of Kuan Hsien, thickets, alt. 1200–1500 m., June 19, 1908 (No. **3093**).

Ilex metabaptista Loesener in *Nov. Act. Leop.-Carol.* LXXVIII. 238 (1901).

Western Hupeh: Chang-yang Hsien, side of streams, alt. 300–600 m., May and December 1907 (No. **756**).

Ilex Fargesii Franchet in *Jour. de Bot.* XII. 255 (1898). — Loesener in *Nov. Act. Leop.-Carol.* LXXVIII. 239 (1901).

Western Hupeh: Hsing-shan Hsien, woods, alt. 1200–2100 m., May and September 1907 (No. **231**). Western Szech'uan: Mupin, woodlands, alt. 1500–2000 m., June 1908 (No. **3098**).

Ilex Fargesii, var. v. forma, *β* **megalophylla** Loesener, n. forma.

Foliis majoribus praecipue latioribus, usque 15 cm. longis et 4.1 cm. latis, petiolo usque 2.1 cm. longo, a typo recedens.

Western Szech'uan: Wa-ssu country, Wên-chuan Hsien, woodlands, alt. 1500 m., July and September 1908 (No. **1034**).

Ilex Franchetiana Loesener, n. sp.

Frutex 2–3 metralis, glaber v. glaberrimus. Ramuli i. s. brunneo-nigrescentes, vel cinereo-fuscescentes, hornotini i. s. angulati vel striato-subsulcati, laeves, 2–6 mm. crassi. Folia interstitiis, 4–18 mm. longis dissita; stipulis 0 vel valde fugacibus, modice v. longiuscule (7–19 mm. longe) petiolata; petiolo quam lamina circ. 5–10-plo breviore, supra medio profunde longitudinali-sulcato; lamina angustissime decurrente marginato, marginibus superne conniventibus v. erectis, 1–2 mm. crasso, obovato-elliptica usque oblanceolata rarius lanceo-lato-elliptica, margine i. s. anguste v. angustissime recurvato, densius v. remotius et argute serrulato, iuxta basin saepe integro, basi cuneata v. raro cuneato-subobtusa, apice manifeste et acute v. acutiuscule acuminata, acumine usque 19 mm. longo, 7–12.5 cm. longa, 1.7–3.5 cm. lata, chartacea usque coriacea, glabra, i. s. supra nitidula v. vix nitidula, cinereo-olivacea usque subatro-brunnea, subtus paullulo pallidiora, costa media supra i. s. impressa vel insculpta, subtus expressa, nervis lateralibus utrinque circ. 7–10 sub angulo circ. 30–50° obviis, rectis et iuxta marginem ad apicem versus curvatis raro leviter et sub-~-formiter arcuatis, tenuibus, supra plane obsoletis v. vix prominulis, v. sub lente tenuissime et obsolete insculptis, subtus tenuiter prominentibus v. prominulis iuxta marginem laxius et saepe obsolete reticulatis, reticulo supra inconspicuo. Inflorescentiae in foliorum axillis fasciculatae, ♂ 1-florae vel semel dichotomae, 2–3-florae, ♀ 1-florae, glabrae, pedunculis in ♂ brevissimis, sub alabastris vix 1 mm. longis, bracteis deltoideis vel ovato-deltoideis obtusis vel acutis 1–1.5 mm. longis, pedicellis in ♀ usque 4 mm. longis, prophyllis medio v. sub medio pedicello insertis, bracteis similibus integris; flores 4-meri vel 4–5-meri; calycis lobi late ovato-deltoidei, obtusi v. rotundati, vix 1 mm. longi et circ. 1 mm. lati, sub lente valida tenuissime

et parce ciliolati; corollae fl. ♀ petala albida ovata vel ovalia, sublibera, circ. 3 mm. longa, fl. ♂ tantum alabastra visa; stamina fl. ♂ tantum in alabastra visa; staminodia fl. ♀ petalis vix breviora, libera v. sublibera, antheris sterilibus apice intrusis, subcordiformibus, filamento multo brevioribus; ovarium fl. ♀ subovoideum obsolete longitudinali-4-sulcatum, stigmate crassiusculo et discoidea obsolete 4-lobo coronatum, circ. 2.75 mm. longum, 4-loculare etc. Drupa globosa, stigmate discoideo coronata, circ. 6 mm. diam., in vivo rubra v. scarlatina, i. s. rugosa et plus minusve striato-sulcata, exocarpio tunicato, mesocarpio carnoso, 4–pyrena, pyrenis subtrigonis, dorso striato-sulcatis, 5 mm. longis et circ. 3 mm. latis, ligneis valde duris etc.

Western Hupeh: Changyang Hsien, woodlands, alt. 1200–1800 m., May and September 1907 (No. **148**). Western Szech'uan: southeast of Tachien-lu, woods, alt. 2400 m., June and October 1908 (No. **1257**).

This species is closely related to *I. Fargesii* Franchet, which differs in the shape of the leaves. These are entire or mostly entire below the middle, with longer bases gradually narrowed into the petioles, and at the apex are narrowed into a shorter and broader point. It forms a transition between the sections *Microdontae* and *Repandae*, and might perhaps be better placed in the latter, although I have placed it with the *Lemurenses* on account of its close relationship with *I. Fargesii*.

Ilex Aquifolium Linnaeus, var. c **chinensis** Loesener in *Nov. Act. Leop.-Carol.* LXXVIII. 263 (1901).

Western Hupeh: Ichang, cliffs in glens, etc., alt. 300–600 m., March 27, 1907 (No. **3100**).

Ilex Pernyi Franchet in *Nouv. Arch. Mus. Paris*, sér. 2, V. 221 (*Pl. David.* I. 69) (1883). — Oliver in *Hooker's Icon.* XVI. t. 1539 (1886). — Loesener in *Nov. Act. Leop.-Carol.* LXXVIII. 278 (1901).

Western Szech'uan: southeast of Tachien-lu, alt. 2100 m., July 18, 1908 (No. **119**). Western Hupeh: north and south of Ichang, mountain sides, alt. 1200–1800 m., May 14 and September 1907 (No. **119** in part).

Ilex cornuta Lindley & Paxton, *Flow. Gard.* I. 43, fig. 27 (1850). — Loesener in *Nov. Act. Leop.-Carol.* LXXVIII. 280 (1901).

Kiangsi: Kiu-kiang, abundant, alt. 150 m., August 2, 1907 (No. **1608**). Western Hupeh: Ichang, ravines and hill-sides, alt. 300–600 m., May 1907 (No. **3101**).

Ilex ciliospinosa Loesener, n. sp.

Frutex 1–4-metralis. Ramuli erecti v. patentes, vetustiores teretes,

cortice sordide griseo dense rimuloso et asperulo obtecti, triennes 4–5 mm. crassi, hornotini dense et breviter subvillosulo-hirtelli, tarde v. non glabrescentes, obsolete longitudinali-striolati. Folia usque quartum in annum in ramulis remanentia, interstitiis usque 11 mm. longis dissita; stipulis e basi crassa subulatis plus minus persistentibus, callosis vix 1 mm. longis, interdum indumento reconditis, brevissime (1–vix 2 mm. longe) petiolata; petiolo quam lamina 15–38-plo breviore, supra medio longitudinali-impresso; lamina anguste decurrente marginato, sub lente valida saepe pulvereo-puberulo v. subglabro, basi usque 1.5 mm. crasso, parvula, ovalia v. ovata usque oblonga, margine anguste recurvato, spinose denticulato-serrato, denticulis porrectis in spinulas singulas ciliiformes 1–2 mm. longas angustatis, basi obtusa v. cuneato-obtusa raro subcuneata, apice acuta v. subacuminata et plerumque in spinulam angustata, 2.5–3.8 cm. longa, 1–1.8 cm. lata, coriacea v. tenaciter et rigidule coriacea, i. s. supra nitidula, brunneo- v. subflavo-olivacea, subtus vix pallidiora, glabra, costa media supra insculpta, subtus prominente, nervis lateralibus utrinque circ. 4–7 sub angulo 40–60° patentibus, rectis v. plerumque paullulum ad basin versus arcuatis v. plus minusve sub-⁓-formiter curvatis, iuxta marginem laxe reticulatis, supra tenuissime insculptis v. plane obsoletis, subtus prominentibus vel prominulis, reticulo subtus prominulo. Inflorescentiae in foliorum axillis fasciculatae, ♀ tantum notae, 1-florae, pedicellis sub drupa brevissimis, vix 2 mm. longis, sub lente brevissime pulvereo-puberulis, prophyllis medio pedicello insertis, crassis v. subscariosis, deltoideis et basi utrinque unidenticulatis, sub lente valida parce et breviter ciliolatis, 1–1.25 mm. longis; flores ovario bimero excepto 4-meri, ipsi ignoti; calyx sub drupa 4-lobus, 2–3 mm. diam., lobis late deltoideis obtusis v. subrotundatis, circ. 1 mm. longis, paene 2 mm. latis. Drupa i. s. ellipsoidea, stigmate discoideo coronata, i. v. rubra, i. s. rugosa, circ. 7 mm. longa, 5–6 mm. lata, exocarpio tunicato, mesocarpio carnoso, 2-pyrena, pyrenis subsemiovoideis (i. e. forma dimidiae ovi medio longitudinaliter persecti parti similibus), circ. 5.5 mm. longis, 3–4 mm. latis, lignescentibus et tenacibus, longitudinaliter a basi ad apicem dorso subpalmatim 5-striolatis, ventre circ. 2-striolatis, seminibus non visis.

Western Szech'uan: Chien-shi Hsien, woodlands, alt. 1500 m., September 15, 1908 (No. **996**); Wa-shan, thickets, alt. 1500 m., October 1908 (No. **996**[a]).

Most nearly related to *I. dipyrena* Wallich, which differs in the leaves being more than twice as large and in its glabrous or at least nearly glabrous branchlets.

Ilex corallina Franchet in *Bull. Soc. Bot. France*, XXXIII. 452 (1886); *Pl. Delavay*. II. 127 (1889). — Loesener in *Nov. Act. Leop.-Carol.* LXXVIII. 327 (1901).

Western Hupeh: Ichang, ravines, alt. 300–600 m., March 20 and June 1907 (No. **6**). Western Szech'uan: Mupin, thickets, alt. 1200–1800 m., November 1908 (No **1269**)

Ilex szechwanensis Loesener in *Nov. Act. Leop.-Carol.* LXXVIII. 347 (1901).

Western Hupeh: south of Ichang, thickets, alt. 1200 m., October 1907 (No. **461**).

Ilex Wilsonii Loesener in *Nov. Act. Leop.-Carol.* LXXXIX. No. I. 287 (1908).

Kiangsi: Kuling, thickets, alt. 1200 m., July 31, 1907 (No. **1610**).

Ilex subrugosa Loesener, n. sp.

Frutex 1.5–2 m. altus. Ramuli recti, erecti v. patentes, vetustiores demum subteretes, iuniores i. s. longitudinaliter striato-subangulati, biennes circ. 3.5 mm. crassi, hornotini 2–2.5 mm. crassi, sub lente dense sed brevissime pulvereo-puberuli. Folia usque tertium in annum (etiam diutius?) in ramulis remanentia, interstitiis usque 13 mm. longis dissita, stipulis minutis, triangularibus, callosis, persistentibus sed postea oblitteratis, breviuscule (4–8 mm. longe) petiolatis, petiolo quam lamina circ. 7–9-plo breviore, sub lente valida minute et brevissime pulvereo-puberulo, supra acute sulcato; lamina angustissime decurrente marginato, circ. 1 mm. crasso, lanceolata vel ovato- vel oblongo-lanceolata, raro suboblanceolata, margine i. s. anguste recurvato, dense serrulato, basi cuneata v. acuta, apice sensim et obtusiuscule v. subacute acuminata, acumine usque 13 mm. longo, 4.5–8 cm. longa, 1.2–2.1 cm. lata, coriacea, supra nitida v. nitidissima, brunneo-olivacea, subtus pallidiora, non v. vix nitidula, costa media supra insculpta, subtus prominula v. vix prominente, nervis lateralibus utrinque circ. 5–7, sub angulo 45–65° patentibus, subrectis v. obsolete ad basin versus curvatis, supra plane obsoletis v. rarius conspicuis et sub lente tenuissime insculptis, subtus vix prominulis vel obsoletis, iuxta marginem laxe reticulatis, reticulo subtus vix prominulo v. plerumque plane inconspicuo, epidermide subtus saepius plicato-rugulosa. Inflorescentiae ♀ tantum notae, in foliorum axillis pauci fasciculatae, v., si maris, axi communi evoluto brevi usque circ. 5 mm. longo in pseudoracemum brevissimum dispositae, singulae uni-

florae, sub lente valida brevissime et minute pulvereo-puberulae, pedicellis 3–4 mm. longis, basi biprophyllatis, prophyllis deltoideis acutis, dorso medio plus minusve carinatis et sub lente brevissime pilosulis, circ. 1 mm. longis; flores ex drupa 4-meri; calyx sub drupa 4-lobus, 2–2.5 mm. diam., lobis late deltoideis obtusis vel rotundatis, integris, 0.5–0.75 mm. longis, circ. 1.5 mm. latis. Drupa late ellipsoidea, stigmate discoideo, obscuro, 4-lobo coronata, in vivo rubra, i. s. griseo-fusca et obsolete rugosa, circ. 5 mm. longa, 4–4.5 mm. lata, exocarpio tunicato extrinsecus sub lente valida tenuissime subtuberculato-ruguloso, mesocarpio tenui carnoso, 4-pyrena, pyrenis circ. 3.5 mm. longis, 1.75 mm. latis, trigonis, longitudinaliter paucistriolatis et impresso-subsulcatis, tenacibus, lignescentibus.

Western Szech'uan: Mt. Wa-wu, Hong-yah Hsien, alt. 1200 m., September 1908 (No. **3099**).

This species is perhaps better referred to the section *Microdontae*, but this must remain undecided, until the ♂ inflorescence is known. The lustrous leaves with the midribs impressed on their upper surface, the nearly obsolete veins and the plicate-rugulose epidermis of the lower surface indicate, however, that it may belong with the section *Rugosae*.

Ilex macrocarpa Oliver, var. *α* **genuina** Loesener in *Nov. Act. Leop.-Carol.* LXXVIII. 491 (1901).

Western Hupeh: Chang-yang Hsien, alt. 600–1000 m., November 1907 (No. **151**, in part); north and south of Ichang, alt. 600–1000 m., May 3 and October 1907 (No. **151**, in part); Patung Hsien, roadsides, etc., alt. 300–900 m., May 1907 (No. **3089**, in part).

Ilex macrocarpa, var. *β* **trichophylla** Loesener, *l. c.* (1901).

Western Hupeh: north and south of Ichang, alt. 600–1000 m., May 3 and October 1907 (No. **151**, in part); Patung Hsien, roadsides, etc., alt. 300–900 m., May 1907 (No. **3089**, in parte).

The specimens distributed under Nos. 151 and 3089 represent partly the typical form and partly this variety, which differs in its longer pedicels and in the leaves being pubescent beneath from the typical form with its shorter pedicels and glabrous leaves.

Ilex Henryi Loesener in *Nov. Act. Leop.-Carol.* LXXVIII. 491 (1901).

Western Szech'uan: near Wa-shan, alt. 600–900 m., June 1908 (No. **3088**).

Ilex fragilis Hooker f., *α* **genuina** Loesener in *Nov. Act. Leop.-Carol.* XXVIII. 493 (1901).

Western Szech'uan: Wa-shan, woods, alt. 2400 m., September 15, 1908 (No. **892**).

Ilex fragilis, *β* **Kingii** Loesener in *Nov. Act. Leop.-Carol.* XXVIII. 493 (1901).

Western Szech'uan: southeast of Tachien-lu, woods, alt. 1800–2300 m., June and October 1908 (No. **892**[a]).

Ilex dubia Britton, Sterns & Poggenburg, var. e **pseudomacropoda Loesener, n. var.**

Ramulis abbreviatis crassis usque 4.5 cm. longis, foliis subtus glabris a var. *macropoda* diversa quacum ceterum congruens.

Western Hupeh: Hsing-shan Hsien, woods (only one tree seen), alt. 2100 m., May 31, 1907 (No. **3090**).

No. **664** is represented only by a leafless fruiting branch and cannot be positively identified without leaves; it belongs either to *Ilex micrococca* Maximowicz or to a closely allied species.

ACERACEAE.

Determined by ALFRED REHDER.

DIPTERONIA Oliver.

Dipteronia sinensis Oliver in *Hooker's Icon.* XXIX. t. 1898 (1889).

Western Hupeh: north and south of Ichang, woodlands, alt. 900–1800 m., June 1907 (No. **883**, in part); Chang-lo Hsien, alt. 900–1800 m., September 1907 (No. **883**, in part); Hsing-shan Hsien, alt. 900–1600 m., July 1907 (No. **883**, in part); Patung Hsien, alt. 1600 m., June 1907 (No. **883**, in part). Western Szech'uan: Mupin, woods, alt. 1200–1800 m., September 1907 (No. **883**, in part).

The fruits of the specimens from Mupin are somewhat larger and sometimes 3 cm., long.

ACER L.

Sect. PLATANOIDEA Pax.

Acer pictum Thunberg, *Fl. Jap.* 162 (1784).

The typical form does not occur in China.

Acer pictum, var. **parviflorum** C. K. Schneider, *Ill. Handb. Laubholzk.* II. 225 (1907).

Acer mono Maximowicz in *Bull. Phys. Math. Acad. Sci. St. Pétersbourg*, XV. 126 (1857); in *Mél. Biol.* II. 416 (1857).
Acer laetum, γ *parviflorum* Regel in *Bull. Phys. Math. Acad. Sci. St. Pétersbourg*, XV. 219 (1857); in *Mél. Biol.* II. 486 (1857).
Acer pictum, var. *mono* Pax in *Bot. Jahrb.* VII. 236 (1886); in Engler, *Pflanzenreich*, Heft 8 (IV. 163), 47 (1903). — Rehder in Sargent, *Trees and Shrubs*, I. 177 (1905).

Western Hupeh: Fang Hsien, woods, common, alt. 1200–2300 m., May and September 1907 (Nos. **310**, **1889**?, **1905**, **1915**, **1919**, **1921**); Hsing-shan Hsien, woods, alt. 1500–1800 m., May 31, 1907 (No. **642**); Wên-tsao-shan, Hsing-shan Hsien, alt. 1800–2400 m., May 1907 (Nos. **1897**, **1922**); Chang-yang Hsien, woodlands, May, July, and September 1907 (Nos. **1923**, **1926**, **2049**). Western Szech'uan: Ta-p'ao-shan, northeast of Tachien-lu, forests, alt. 2300–

2800 m., July 3, 1908 (No. **1935**); southeast of Sungpan, woods, alt. 2400–2700 m., August 1910 (No. **4507**).

Acer fulvescens Rehder, n. sp.

Arbor usque ad 20 m. alta trunco ad 65 cm. diam.; cortex trunci modice laevis, longitudinaliter leviter tantum fissus, cinereus v. flavido-cinereus, lenticellis brunneis saepe in series horizontales confluentes dispositis instructus. Ramuli juniores glabri, annotini pallide brunnei v. griseo-brunnei v. grisei, lenticellis paucis instructi. Gemmae brunneae, perulis 4–6 exterioribus. Folia membranacea, graciliter petiolata, circuitu suborbicularia, basi rotundata v. subcordata, plerumque trilobata, interdum lobis duobus basalibus minutis additis, sinubus latissimis apertis, lobis brevibus late triangulari-ovatis, subito longe acuminatis, 5–9 cm. longa et 5–10 cm. lata, supra glabra et laete viridia, subtus pallidiora, minute reticulata, tomento villoso initio flavescente, demum fulvescente laxe obtecta; petioli glabri v. tantum apicem versus pubescentes, rarius toti puberuli, 2.5–6 cm. longi. Corymbus pedicello glabro, 2–3 cm. longo insidens, laxus, multiflorus, pedicellis gracilibus glabris v. apicem versus puberulis v. interdum corymbus totus puberulus; flores desiderantur. Samara alis horizontalibus loculo compresso 8 mm. longo incluso 3 cm. longis, supra medium latissimis et circa 1 cm. latis, juniora purpurascentia, demum pallide flavido-brunnea.

Western Szech'uan: Pan-lan-shan, west of Kuan Hsien, woods, alt. 2100–2700 m., September 1908 (No. **1004**, type); Wa-shan, woods, alt. 1800–2300 m., October 1908 (No. **1162**); Mupin, woods, alt. 1500–2000 m., July 1908 (No. **1907**).

Acer fulvescens seems most nearly related to *Acer pictum* Thunberg, which has the branches covered with the same kind of bark, but differs in the glabrous generally five-lobed leaves and the shorter wings of the fruits. *Acer longipes*, which is very similar, is easily distinguished by the smooth greenish or purplish bark of the younger branches without lenticels, the perfectly glabrous corymbs and petioles and by the larger leaves, their pubescence being not yellowish or fulvous. Nos. 1162 and 1907 differ from the type in their puberulous inflorescence. No. 1907 has even the whole petioles and the young branchlets below the nodes puberulous.

Acer cappadocicum Gleditsch, in *Schrift. Gesell. Naturf. Freunde Berlin*, VI. 116, t. 2 (1785).

Acer monspessulanum, var. β *Linnaeus*, *Sp.* 1056 (in part as to syn. *Tournefort*) (1753).

Acer laetum C. A. Meyer, *Verz. Kauk. Pflanz.* 206 (1831). — Pax in Engler, *Pflanzenreich*, Heft 8 (IV. 163), 48 (1902). — Rehder in Sargent, *Trees and Shrubs*, I. 177 (1905).

Though Gleditsch's species is based only on a single leaf without flowers or fruits, the figure leaves no doubt that it is the same as *A. laetum* C. A. Meyer, and his name being about 45 years older must supersede that given by Meyer. *Acer cappadocicum* is based on a leaf collected by Gundelsheimer, who traveled with Tournefort in Asia Minor during the years 1700 to 1702. The same species is mentioned by Tournefort (*Coroll.* 43) under the name *Acer orientalis Hederae folio*, but without any description or remark.

Acer cappadocicum, var. **sinicum** Rehder, n. var.

Acer laetum var. *cultratum* Pax in Engler, *Pflanzenreich*, Heft 8 (IV. 163), 48 (in part) (1902). — Rehder in Sargent, *Trees and Shrubs*, I. 178 (in part) (1905).

A typo differt foliis minoribus plerumque 6–9 cm. longis quinquelobis basi subcordatis v. truncatis, fructibus minoribus alis loculo incluso 2.5–3 cm. longis, floribus minoribus.

Western Hupeh: Hsing-shan Hsien, woods, alt. 1500–2100 m., May 11, 1907 (No. **1884**); Chang-lo Hsien, woods, alt. 1500 m., May 1907 (No. **1925**). Western Szech'uan: Ta-p'ao-shan, northeast of Tachien-lu, woods, alt. 2300 m., July 5, 1908 (No. **1903**); Wa-ssu country, Wên-chuan Hsien, woods, alt. 2100–2600 m., October (No. 1009).

To this variety I refer all Chinese specimens I have seen from Hupeh, Szech'uan, and Yunnan. It differs from var. *indicum* in its smaller leaves with narrower and longer lobes, purplish when unfolding and less densely bearded in the axils of the primary veins beneath and in the smaller flowers and fruits. In the shape and size of its leaves it much resembles *A. pictum*, var. *parviflorum* C. K. Schneider, but is easily distinguished by the smooth greenish bark of the young branches. No. 1903 from Szech'uan differs from the typical form in its somewhat larger leaves, 7 to 11 cm. long, and Henry's No. 10877 from Yunnan in its slightly hairy calyx and ciliate sepals.

Acer cappadocicum and particularly its variety *sinicum* is often confounded with *Acer pictum*, as the relative length of wing and nutlet, usually given as the chief distinguishing character, is very variable in both species. The best character by which to distinguish these two species seems to lie in the bark of the younger branches; this character has moreover the advantage that it is always recognizable even in winter. In *Acer pictum* the epidermis of the young branches ceases growing during the first summer, and the bark of the branches becomes corky and grayish white, ashy gray or light grayish brown and is marked with conspicuous lenticels and in the second year with slight longitudinal fissures, while in *A. cappadocicum* the branches remain covered by the growing epidermis for several years, and are therefore smooth, ranging from green or greenish to purple in color, marked with only few and small lenticels or are without lenticels. Other distinguishing characters are the generally truncate leaves, at least in the Chinese variety, in *A. pictum* they are subcordate, the more convex and smaller nutlets in *A. cappadocicum* and the wing contracted at the base, while in *A. pictum* the nutlets are much compressed, almost flat, and the wings are of nearly the same width through their whole length. The terminal winter-buds of *A. pictum* have 2 to 3 pairs of outer scales, those of *A. cappadocicum* 3 to 4 pairs.

Acer cappadocicum, f. **tricaudatum** Rehder, n. comb.

Acer laetum, var. *tricaudatum* Rehder in Sargent, *Trees and Shrubs*, I. 178 (1905).

Western Hupeh: Fang Hsien, cliffs, alt. 1700 m., May 14, 1907 (No. 1892). Western Szech'uan: west of Tachien-lu, side of streams, alt. 2700–3000 m., October 1908 (No. 1358).

In No. 1358 the wings of the fruit are scarcely twice as long as the nutlets and the fruits much resemble those of *A. pictum* Thunberg, but the bark shows the character of *A. cappadocicum*. *Acer cappadocicum*, f. *tricaudatum* is apparently only a form of the preceding variety and possibly the variation is not even constant.[1]

Acer amplum Rehder, n. sp.

Arbor 5–12 m. alta ramulis junioribus glabris viridibus v. purpureo-viridibus laevibus lenticellis parvis paucis institutis epidermate per plures annos persistente. Gemmae subglobosae, pallide olivaceae, perulis circa 6 exterioribus obtusis glabris margine minute ciliato excepto, perulis interioribus accrescentibus extus pilis fulvis appressis vestitis. Folia chartacea, quinque-loba, latiora quam longa, basi

[1] The change of the specific name makes necessary, besides those mentioned above, the following new combinations of varietal names:

Acer cappadocicum, f. **horticola** Rehder, n. comb.

Acer laetum, f. *horticola* Pax in *Bot. Jahrb.* VII. 238 (1886).
Acer laetum, f. *rubrum* Schwerin in *Gartenfl.* XLII. 459 (1893).

Acer cappadocicum, f. **tricolor** Rehder, n. comb.

Acer laetum, f. *tricolor* Schwerin in *Gartenfl.* XLII. 459 (1893).

Acer cappadocicum, var. **indicum** Rehder, n. comb.

Acer cultratum Wallich, *Pl. As. Rar.* II. 4 (1831).
Acer Lobelii, subsp. *laetum*, var. *indicum* Pax in *Bot. Jahrb.* VII. 237 (1886).
Acer laetum, var. *indicum* Schwerin, *Gartenfl.* XLII. 459 (1893).
Acer laetum, var. *cultratum* Pax in Engler, *Pflanzenreich*, Heft. 8 (IV. 163), 48 (1902).

Of the other published names two, *Acer laetum*, var. *colchicum* Pax and *Acer laetum*, f. *viride* Hesse represent the type and need therefore no new names, while the two following varieties must be referred to other species.

Acer laetum, var. *tomentosulum* Rehder is identical with *Acer longipes* Franchet. It was originally based on a flowering branch with undeveloped, only partly unfolded leaves, apparently quite different from those of *A. longipes*, of which I also had seen at that time only a few specimens. Additional material, however, recently received convinced me that it cannot be separated from *A. longipes*.

Acer laetum, var. *Regelii* Pax is identical with *A. turkestanicum* Pax in Engler, *Pflanzenreich*, Heft 8 (IV. 163), 48 (1902), as is shown by the collection of Turkestanian Maples of the St. Petersburg Herbarium, which was loaned to me through the kindness of Mr. Lipsky. The leaves are always pubescent beneath, though at maturity the pubescence is sometimes much reduced and hardly noticeable without a lens, which probably accounts for the fact that Pax placed the fruiting specimen under the glabrous *A. laetum*.

truncata v. subcordata, 10–18 cm. lata et 9–16 cm. longa, lobis late ovatis brevibus, subito longe acuminatis, basalibus interdum minutis v. fere obsoletis, sinubus late apertis, supra glabra, obscure viridia, subtus laete viridia, glabra axillis barbatis exceptis, initio ut supra sparse glandulosa, interdum ad basin puberula, maturitate reticulata; petioli graciles, glabri v. apice tantum puberuli, 7–10 cm. longi. Corymbus fere sessilis v. pedunculo vix 5 mm. longo, amplus et laxus, 12–15 cm. diam., glaber, pedicellis gracilibus perianthio longioribus; flores 12 mm. diam.; sepala oblonga, apice obtusa, glabra, 5 mm. longa, viridi-alba; petala obovata v. oblongo-ovata, basi contracta, 6 mm. longa et 3–4 mm. lata, alba; stamina petalis breviora; ovarium glandulosum; stylus 1.5 mm. longus stigmatibus recurvis stylum aequantibus. Samara alis angulo obtuso v. recto divergentibus loculo leviter venoso 11 mm. longo et 7 mm. lato incluso 3.5–4.5 cm. longis et 12–15 mm. latis, medio latissimis, pallide brunneis.

Western Hupeh: Patung Hsien, woodlands, alt. 1500–1800 m., June and July 1907 (Nos. **1906**, **1938**); without locality, April and May 1900 (Veitch Exped. Nos. 287, 605).

Acer amplum is nearly related to *A. cappadocicum* Gleditsch, which differs chiefly in its smaller long-peduncled inflorescence and smaller leaves with narrower and longer lobes. It forms with *A. catalpifolium* and *A. longipes* a group of closely related species characterized by the sessile ample inflorescence.

Acer amplum, var. **tientaiense** Rehder, n. comb.

Acer longipes, var. *tientaiense* C. K. Schneider, *Ill. Handb. Laubholzk.* II. 224 (1907).

Folia plerumque trilobis interdum utrinque lobo basali minuto instructa, latiora quam longa, 7–16 cm. lata et 6–14 cm. longa, basi plerumque truncata, utrinque glabra, lobis oblongo-ovatis longe acuminatis, margine undulato. Samara alis loculo incluso 2.5–3.5 cm. longis plerumque vix 1 cm. latis. Ceterum ut in typo.

Chekiang: Tientai Mts., 1889, *E. Faber* (No. 202). Kiangsi: Kuling, near temple, alt. 1200 m., July 29, 1907 (No. **1502**).

This variety differs from the type chiefly in its smaller more often 3-lobed leaves with longer and narrower lobes and in the smaller fruits with narrower wings. The specimens from Kuling approach the type in the larger mostly 5-lobed leaves and the somewhat larger fruits.

Acer catalpifolium Rehder, n. sp.

Arbor 10–23 m. alta; truncus ad 1.20 m. diam., cortice pallido cinereo-flavido interdum decorticante et corticem interiorem cinnamomeum detegente obtectus; ramuli juniores glaberrimi sine len-

ticellis v. lenticellis perpaucis parvis instructi, virides v purpurascentes, vetustiores epidermate laevi per plures annos persistente instructi. Gemmae ovoideae, circa 8 mm. longae, olivaceae, glaberrimae, perulis 6 v. 8 exterioribus, inferioribus fere semiorbicularibus, superioribus ovatis obtusiusculis. Folia ovata v. ovato-oblonga, longe acuminata, basi rotundata, indivisa et integra v. infra medium utrinque lobo rotundato brevissimo instructa, 9–18 cm. longa et 4.5–12 cm. lata, rarissime foliis 3–5-lobis fere tam latis quam longis, lobis late ovatis longe acuminatis instructis, basi truncatis v. subcordatis intermixtis, utrinque glabra et laete viridia, subtus reticulata et in axillis barbulata; petioli glabri, virides, 4–14 cm. longi. Corymbus sessilis, multiflorus, laxus, usque ad 20 cm. diam.; flores desiderantur. Fructus pallide flavido-brunnei; alae cum loculis complanatis elevato-striatis 4–5 cm. longae et 10–13 mm. latae, rectae, angulo obtuso divergentes.

Western Szech'uan: near Ya-chou Fu, side of streams, alt. 800–900 m., October 1908 (No. **1359**, in part), alt. 450–600 m., October 1910 (No. **4208**); west of Kuan Hsien, alt. 900 m., June 17, 1908 (No. **1359**, in part), without locality, May 1904 (Veitch Exped. No. 3350).

Acer catalpifolium is nearly allied to *A. amplum* and to *A. longipes*, both of which are easily distinguished by their three- or five-lobed leaves. *Acer longipes*, which occasionally produces some undivided leaves, differs besides in the pubescent under side of the leaves. According to Wilson this species is a handsome tree of very distinct appearance with the foliage turning yellow in autumn.

Acer longipes Franchet apud Rehder in Sargent, *Trees and Shrubs*. I. 178 (1905).

Acer laetum, var. *tomentosulum* Rehder, *l. c.*

Western Hupeh: South Wushan, woods, alt. 1800 m., October 1907 (No. **434**, in part); Fang Hsien, alt. 1600 m., May 21, 1907 (No. **434**, in part); Chang-yang, alt. 1600 m., October 1907 (No. **434** in part; Hsing-shan Hsien, woods, not common, alt. 1800 m., May 10, 1907 (No. **1909**).

Additional material has shown that the leaves are sometimes five-lobed, and that apparently my *A. laetum*, var. *tomentosulum*, which was based on a flowering specimen with only half grown leaves, belongs to this species, so that now the pubescence of the foliage constitutes the chief character by which to distinguish *A. longipes* from *A. cappadocicum* and *A. amplum*.

Sect. PALMATA

Acer palmatum Thunberg, *Fl. Jap.* 162 (1784).

Kiangsi: Kuling, thickets, alt. 1200 m., July 28 and 31, 1907 (Nos. **1504**, **1505**).

These specimens agree well with typical *A. palmatum*; the leaves are generally seven-lobed, about 6–8 cm. in diameter with oblong-ovate, acuminate and doubly serrate lobes, quite glabrous beneath except tufts of hairs at the base of the primary veins, and slightly reticulate; the wings of the fruit measure with the nutlet 2–2.2 cm. The Hupeh specimens referred by me previously (in Sargent, *Trees and Shrubs*, I. 179) to this species belong to the following species.

Acer robustum Pax in Engler, *Pflanzenreich*, Heft 8 (IV. 163), 79 (1902).

Western Hupeh: Hsing-shan Hsien, woods, alt. 1800 m., May, June and October 1907 (Nos. **339, 1890, 1932**); Fang Hsien, side of streams, alt. 1500–1800 m., May 21, 27 and July 1907 (Nos. **1899, 1900, 1913, 1920**); Chang-lo Hsien, woods, alt. 1200–1500 m., September 1907 (No. **2050**); without locality (Veitch. Exped. Nos. 538, 540).

Acer robustum differs from *A. palmatum* chiefly in its larger fruits and the larger and broader sepals and petals; the sepals and young fruits are purple. The leaves when unfolding are thinly covered with long hairs, but soon become glabrous except the bearded axils of the veins; the inflorescence is also at first slightly hairy.

Acer ceriferum Rehder, n. sp.

Arbor 10 m. alta trunco circuitu metrali; ramuli hornotini tomento villoso cinereo partim usque secundum annum persistenti vestiti, vetustiores olivacei v. brunnei, laeves, cereo albido-cinereo obtecti. Folia membranacea, quinque- v. septem-lobata, circuitu fere semiorbicularia, latiora quam longa, basi truncata v. subcordata, 5–8 cm. lata et 4.5–6 cm. longa, lobis ovato-oblongis, acuminatis, simpliciter et argute serrulatis, sinubus acutis mediam laminam attingentibus, supra laete viridia, subtus pallidiora et reticulata, utrinque ad venas primarias pubescentia subtus densius, in axillis venarum non barbata; petioli 2.5–4 cm. longi, floccoso-villosi. Flores desiderantur. Fructus (immaturi sed evidenter ad iustam magnitudinem perventi) 3–6 in corymbo parvo; pedunculus gracilis, 4 cm. longus, laxe villosus; sepala diu persistentia, oblonga, intus villosa; loculi horizontaliter patentes, 6 mm. longi et 4 mm. lati, laxe villosi, alae leviter incurvae cum loculis 2 cm. longae, supra medium 8 mm. latae, in loculum attenuatae, non decurrentes.

Western Hupeh: Fang Hsien, ravines (only one tree seen), alt. 1500 m., June and July 1907 (No. **1934**).

On account of its pubescence this species seems most nearly related to *A. Sieboldianum* Miquel, which is easily distinguished by its seven- to eleven-lobed leaves, the bearded axils of the under side, the stouter petioles, the decurrent wing of the fruit and the absence of the waxy covering of the branches.

Sect. SPICATA Pax.

Acer Oliverianum Pax in *Hooker's Icon.* XIX. text to t. 1897 (1889).

Western Hupeh: Fang Hsien, woods, alt. 1500 m., July 1907 (No. **1936**).[1]

Acer Giraldii Pax in Engler, *Pflanzenreich*, Heft 8 (IV. 163), 79 (1902).

Western Szech'uan: southeast of Sungpan, forests, alt. 2400 m., August 1910 (No. **4506**). Shensi: *G. Giraldi* (No. 2115, 2136).

Closely related to *A. caesium* Wallich from which it differs chiefly in the broader, less acuminate lobes, the minute often obsolete basal lobes, the coarser and more remote serration and the strongly reticulate under side of the leaves. The size of the fruits seems to afford no distinguishing character, for I have before me Himalayan specimens with fruits about 4 cm. long and Wilson's No. 4506 has fruits 5.5 cm. long. Wilson's No. 2707 (in Herb. Kew.) from Hupeh referred by me formerly to *A. caesium*, probably belongs here.

Acer sinense Pax in *Hooker's Icon.* XIX. text to t. 1897 (1889).

Western Hupeh: Hsing-shan Hsien, woods, alt. 1500–2100 m. (No. **1885**).

Wilson's No. 1885, consisting only of sterile branches, is possibly a juvenile form of *A. sinense*; it differs from the typical form in its deeply divided five-lobed leaves with oblong, rather narrow lobes, the middle one 7–8 cm. long and 3 cm. broad. Apparently the same form is figured by Veitch as *A. spec.* (in *Jour. Roy. Hort. Soc.* XXIX. 354, fig. 99, 103). I have not been able to find among Wilson's and Henry's flowering and fruiting material a specimen which matches this form in the shape of the leaves.

Acer Wilsonii Rehder in Sargent, *Trees and Shrubs*, I. 157, t. 79 (1905).

Western Hupeh: South Wushan, woods, alt. 1200–1800 m., September 1907 (No. **233**).

Acer erianthum Schwerin in *Mitt. Deutsch. Dendr. Ges.* X. 59 (1901).

Western Hupeh: Fang Hsien, thickets, alt. 1800–2400 m., July 1907 (No. **1931**), October 1910 (No. **4428**); southeast of Sungpan, alt. 2500 m., August 1910 (No. **4508**).

[1] There may be added a note on a variety from Fokien.

Acer Oliverianum, var. **serrulatum** Rehder, n. comb.

Acer Wilsonii, var. *serrulatum* Dunn in *Jour. Linn. Soc.* XXXVIII. 358 (1908).

Fokien: April to June 1905, *S. T. Dunn* (Herb. Hongkong Bot. Gard. No. 2545).

Differs from the type in its smaller, three-lobed leaves with short ovate appressed serrulate lobes narrowed into a short obtusish acumen, glabrous on both sides, reticulate beneath, 2.5–4 cm. long and 3.5–5.5 cm. broad; corymb small and few-flowered. To *A. Wilsonii* Rehder it seems less closely related; that species differs from it widely in its paniculate inflorescence, and in the entire or nearly entire lobes of the thinner leaves.

Acer flabellatum Rehder in Sargent, *Trees and Shrubs*, I. 161, t. 81 (1905).

Western Hupeh: Sheng-tung-chin, Fang Hsien, woods, alt. 2100 m., May 19, 1907 (No. **683**, flowers); Chang-yang Hsien, alt. 1200–1800 m., June and October 1907 (Nos. **1891**, **1912**); Hsing-shan Hsien, woods, alt. 1800 m., May 19 and June 4, 1907 (Nos. **1902**, **1911**); Patung Hsien, woods, alt. 1500 m., July 1907 (No. **1910**). Western Szech'uan: Wa-ssu country, Wên-chuan Hsien, woods, alt. 1800–2100 m., July and September 1908 (No. **1006**), alt. 2700 m., October 1910 (No. **4101**); Nin-tou-shan, west of Kuan Hsien, thickets, alt. 2100 m., June 20, 1908 (No. **1908**).

Acer caudatum Wallich, *Pl. As. Rar.* II. 4, 28, t. 132 (1831).

The typical form does not occur in China.

Acer caudatum, var. **multiserratum** (Maximowicz) Rehder in Sargent, *Trees and Shrubs*, I. 163 (1905).

Western Hupeh: Fang Hsien, woods and thickets, common, alt. 2300–2700 m., June and September 1907 (Nos. **309**, **1928**). Western Szech'uan: Mupin, woods, alt. 2100–2700 m., June and July 1908 (Nos. **1110**, in part, **1930**); southeast of Tachien-lu, woods, alt. 2100–2700 m., June and October 1908 (Nos. **1110**, **4335**); Wa-shan, woods, alt. 2100–2700 m., June and October 1908 (No. **1161**); southeast of Sungpan, woodlands, alt. 2400–2700 m., August 1910 (No. **4510**); Pan-lan-shan, west of Kuan Hsien, woods, alt. 2700–2900 m., October 1910 (No. **4143**).

Most of the Szech'uan specimens approach var. *Prattii* Rehder in the more or less pubescent petioles and branchlets.

Acer caudatum, var. **Prattii** Rehder in Sargent, *Trees and Shrubs*, I. 164 (1905).

Western Szech'uan: Mupin, woods, alt. 2700 m., October 1910 (No. **4211**); Wa-ssu country, Wên-chuan Hsien, alt. 2400 m., November 1910 (No. **4103**).

Acer tataricum Linnaeus, *Spec.* II. 1054 (1753).

Western Hupeh: Ichang, roadside thickets, alt. 300 m., May 3, 1907 (No. **1933**). Chekiang: Ningpo, *I. Macgregor*.

Acer trifidum Hooker and Arnott, *Bot. Voy. Beechey*, 174 (not Thunberg) (1841).

Chekiang: Ningpo, *I. Macgregor*.

Acer trifidum, var. **ningpoense** Hance in *Jour. Bot.* XI. 168 (1873).
Kiangsi: Kiukiang Plain (at one place only), alt. 100 m., August 2, 1907 (No. **1503**).

Sect. INTEGRIFOLIA Pax [1]

Acer oblongum Wallich apud De Candolle, *Prodr.* I. 593 (1824).
Western Hupeh: Ichang, around temples, alt. 30–300 m., August and October 1907 (No. **257**); Fang Hsien, around houses, alt. 600–900 m., July 1907 (No. **1929**, in part); Chang-yang Hsien, roadsides, alt. 300–900 m. (No. **1929**, in part).

Acer oblongum, var. **latialatum** Pax in Engler, *Pflanzenreich*, Heft 8 (IV. 163), 31 (1903).
Western Hupeh: Hsing-shan Hsien, alt. 300–900 m., May and October 1907 (No. **376**, in part); Ichang, alt. 30–900 m., May and September 1907 (No. **376**, in part).

Acer laevigatum Wallich, *Pl. As. Rar.* II. 3, t. 104 (1831).
Western Hupeh: Chang-lo Hsien, alt. 300–900 m., July and September 1907 (No. **1924**). Western Szech'uan: near Ya-chou, alt. 600–900 m., May, June, and September 1908 (No. **979**).

Acer Fargesii Franchet apud Rehder in Sargent, *Trees and Shrubs*, I. 180 (1905).
Western Hupeh: Chang-lo Hsien, thickets, alt. 900–1200 m., May 1907 (No. **1937**).

Sect. MACRANTHA Pax, emend.[2]

Acer Davidii Franchet in *Nouv. Arch. Mus. Paris*, sér. 2, VIII. 212 (1884).

[1] To record an extension of range the following species of this section may be mentioned here:

Acer cordatum Pax in *Hooker's Icon.* XIX. text to t. 1897 (1889).
Fokien: April to June 1905, *S. T. Dunn* (Herb. Hongkong Bot. Gard. No. 2541).

[2] The fact that certain forms of *A. laxiflorum* Pax and *A. Maximowiczii* Pax are so similar that the separation of these species becomes difficult, has made it apparent to me, that there are no characters by which to distinguish in the case of some of the species the section *Indivisa* from the section *Macrantha*. I refer therefore all species of the *Indivisa* Pax to the *Macrantha*, except *A. stachyophyllum* Hiern, which I have already, in 1905, transferred to the section *Arguta*, *A. distylum* Siebold & Zuccarini, which with its paniculate inflorescence seems to find its best place in

Kiangsi: Kuling, thickets, alt. 1200 m., July 29, 1907 (No. **1501**). Western Hupeh: Hsing-shan Hsien, woods, alt. 1500–1800 m., May and October 1907 (Nos. **341**, **436**, **225**, in part); Fang Hsien, woods, alt. 1700 m., October 1907 (No. **649**); north and south of Ichang, woods, abundant, alt. 1200–2300 m., September and October 1907 (No. **225** in part); Patung Hsien, side of streams, alt. 1200–1800 m., May 1907 (No. **225**, in part); Fang Hsien, woods, common, alt. 1500–2300 m., May 28, 29 and June 1907 (No. **225**, in part); South Wushan, woods, alt. 1200–2100 m., June 1907 (No. **225**, in part); Chang-yang Hsien, alt. 1800 m., May 1907 (No. **225**, in part); Chang-lo Hsien, woods, alt. 1200–1500 m., May 1907 (No. **225**, in part). Western Szech'uan: foot of Pan-lan-shan, west of Kuan Hsien, woods, alt. 2100 m., October 1908 (No. **1005**); Mupin, woods, alt. 1200–1800 m., July and October 1908 (No. **1005**[a]); Wa-ssu country, Wên-chuan Hsien, side of streams, alt. 2100 m., July and October 1908 (Nos. **1008**, **1008**[a], **1918**, in part); southeast of Tachien-lu, woods, alt. 2100–2400 m., June, 1908 (No. **1917**, in part); Hung-ya Hsien, alt. 900 m., September 12, 1908 (No. **1917**, in part); Chin-ting-shan, northeast of Tachien-lu, woods, common, alt. 2100–2700 m., May 1908 (No. **1918**, in part).

Acer laxiflorum Pax in Engler, *Pflanzenreich*, Heft 8 (IV. 163), 36 (1905).

? *Acer Pavolinii* Pampanini in *Nuov. Giorn. Bot. Ital.* n. ser. XVII. 422 (1910).

Western Szech'uan: Wa-ssu country, Wên-chuan Hsien, woods, alt. 1800–2300 m., July 1908 (Nos. **1007**, **1309**, in part); alt. 2100–2700 m., October 1910 (No. **4099**); Mupin, woods, alt. 1500–2300 m., June, October and November 1908 (Nos. **1007**[a], **1069**, **1234**); Wa-shan, thickets, alt. 1800–2100 m., June and October 1908 (No. **1154**); southeast of Tachien-lu, woods, alt. 2400–2700 m., June 1908 (No. **1309**, in part); Pan-lan-shan, west of Kuan Hsien, woods, alt. 2100–2400 m., June 1908 (No. **1309** in part); Pan-lan-shan, west of Kuan

the section *Integrifolia*, and *A. carpinifolium* Siebold & Zuccarini which remains as the only species in the section *Indivisa*. This section is clearly distinguished from the *Macrantha* by the character of the bark and particularly by the winter-buds which have several pairs of outer imbricate scales, while the *Macrantha* have only two valvate outer scales; the foliage and the inflorescence of *A. carpinifolium* are also quite different from that of any species of the *Macrantha*. From the section *Macrantha* as understood by Pax in his monograph two species, *A. parviflorum* Franchet and *A. erosum* Pax, must be removed and transferred to the *Spicata*, the last named as a synonym to *A. caudatum*, var. *multiserratum* Rehder. In the conception as now here proposed the section *Macrantha* will form a group of closely related species very uniform in the characters of inflorescence, flower and fruit.

Hsien, woods, alt. 2100–2400 m., June 1908 (No. **1904**); alt. 2400–2700 m., October 1910 (No. **4142**); southeast of Sungpan, woods, alt. 2400–2700 m., August and October 1910 (Nos. **4100**, **4513**).

I have seen no specimens of *Acer Pavolinii* Pampanini, but the description agrees well with *A. laxiflorum*; it is based on specimens collected by C. Silvestri near Siang-yang, which would extend the range of *A. laxiflorum* into northern Hupeh.

Acer laxiflorum, var. **longilobum** Rehder, n. var.

A typo differt foliis manifeste quinque-lobatis, lobis superioribus caudato-acuminatis acumine argute serrato, interdum brevibus et brevius acuminatis, basalibus parvis acutis, venis subtus et apice petioli tomento floccoso flavido densiore obtectis, floribus purpureis.

Western Szech'uan: Chiu-ting-shan, cliffs, alt. 2300 m., May 23, 1908 (No. **1927**, type); Wa-ssu country, Wên-chuan Hsien, woods, alt. 2400–2700 m., October 1910 (No. **4108**); Tu-ti-liang Mts., Lungan Fu, woods, alt. 2400–2700 m., August 1910 (No. **4509**).

This variety differs markedly from the type in its five-lobed leaves, but occasionally, particularly near the ends of the shoots, leaves appear which are similar to those of the typical form. The variety presents also some resemblance to *A. Maximowiczii* Pax, but that species has the middle lobe much more elongated and narrower, the lateral lobes more spreading and also narrower, and the leaves are quite glabrous when unfolding except tufts of hairs in the axils of the veins.

Acer Maximowiczii Pax in *Hooker's Icon.* XIX, text to t. 1897 (1899).

A. urophyllum Maximowicz in *Act. Hort. Petrop.* XI. 105 (1890).

Western Hupeh: north and south of Ichang, woods, common, alt. 1200–2300 m., May and September 1907 (Nos. **355**, in part, **1914**, in part); Hsing-shan Hsien, woods, alt. 1800–2000 m., May 1907 (Nos. **355**, in part, **1914**, in part); Wên-tsao Mt., Hsing-shan Hsien, woods, alt. 1800–2000 m., May 27 and June 5, 1907 (No. **355**, in part); Fang Hsien, woods, alt. 2000–2500 m., May and July 19, 1907 (Nos. **355**, in part, **1914**, in part); alt. 1500–2400 m., October 1910 (No. **4427**); South Wushan, woods, alt. 1200–1500 m., September 1907 (No. **229**).

Sect. ARGUTA Rehder

Acer tetramerum Pax in *Hooker's Icon.* XIX. text to t. 1897 (1889).

Western Hupeh: north and south of Ichang, woods, abundant, alt. 1200–2100 m., May and September 1907 (No. **274**, in part); Chang-lo Hsien, alt. 1500–1800 m., May 1907 (No. **274**, in part); Fang Hsien,

woods, abundant, alt. 1800–2100 m., May and September 1907 (No. **274**, in part); Hsing-shan Hsien, woods, abundant, alt. 1500–2100 m., May 19 and October 1907 (Nos. **274**, in part, **430**); Kuan Pao, Chang-yang Hsien, woods, alt. 1200–1800 m., December 1907 (No. **683**, in part, fruits); Patung Hsien, woods, alt. 1500–1800 m., May 1907 (No. **274**, in part); South Wushan, woods, common, alt. 1200–1800 m., May 11, 1907 (No. **274**, in part).

Part of No. 274 represents *A. tetramerum*, var. *lobulatum* Rehder (in *Fedde Rep. Nov. Sp.* I. 174 [1905]) which passes gradually into the type and is perhaps better considered only a slightly different form. This and the type are restricted to Hupeh. The specimens of Szech'uan differ in their leaves being generally ovate to ovate-oblong in outline, not or only very slightly lobed and usually 3-nerved at the base. In regard to other characters they show marked differences, and the following three varieties can be distinguished.

Acer tetramerum, var. **betulifolium** Rehder, n. var.

Acer betulifolium Maximowicz in *Act. Hort. Petrop.* XI. 108 (1890).

Western Szech'uan: Sungpan, woodlands, alt. 2400–2800 m., August 1910 (No. **4511**); southeast of Sungpan, alt. 3000–3200 m., August 1910 (**4512**); Wa-ssu country, Wên-chuan Hsien, alt. 1800–2400 m., July and September 1908 (No. **1901**); alt. 2100–2500 m., October 1910 (No. **4102**). Kansu: banks of the river Lumbu, south of Mt. Chagolo, July 11, 1885, *S. N. Potanin*. Northern Shensi: *G. Giraldi* (Nos. 2118, 2119, 7137, in herb. Florence).

With the recent material collected by Wilson in northwestern Szech'uan at hand I have come to the conclusion, that *A. betulifolium* cannot be separated specifically from *A. tetramerum*. Sungpan is situated only about 80 miles southwest of the type locality and Wên-chuan Hsien about 100 miles south of Sungpan, so that apparently the variety *betulifolium* is restricted to the northwestern part of the range of the whole species. It is chiefly distinguished from the type by its ovate or oblong-ovate leaves, not or only very slightly lobulate, glabrous or glabrescent and usually three-nerved at the rounded or sometimes cuneate base and by the broader wings of the fruits.

Acer tetramerum, var. **betulifolium** f. **latialatum** Rehder, n. forma.

Recedit a varietate praecedente praecipue racemis elongatis ad 18 cm. longis et alis latioribus leviter introrsum falcatis, ad 14 mm. latis.

Western Szech'uan: southeast of Sungpan, woodlands, alt. 2400–3000 m., August 1910 (No. **4104**, in part).

A very striking plant in fruit with its long pendulous racemes and broad wings.

Acer tetramerum, var. **elobulatum** Rehder, n. var.

Acer tetrameram Rehder in Sargent, *Trees and Shrubs* I. 171, t. 85 (in part as to the Szech'uan specimens and fig. 7) (1905).

A typo recedit foliis ovatis v. ovato-oblongis, 6–8 cm. longis, manifeste caudatis, duplicato-serratis, nec v. vix lobulatis, basi rotundatis v. interdum angustatis, plerumque trinerviis, supra fere glabris, subtus villosulis v. ad venas densius, facie sparsius adpresse pubescentibus.

Western Szech'uan: Wa-shan, woods, alt. 2100 m., June 1908 (No. **1895**); southeast of Tachien-lu, woods, alt. 1800–2400 m., June 1908 (No. **1898**); Chiu-ting-shan, thickets, alt. 2000 m., May 23, 1908 (No. **1894**); no locality, alt. 2400–2700 m., May 1904 (Veitch Exped. No. 3348); Nanto (Veitch Exped. No. 1233); no locality, *A. Henry* (No. 8799).

This variety is distributed from Wên-chuan southward, but does not extend into western Hupeh. The typical form differs from this variety chiefly in the smaller triangular-ovate leaves, more or less lobed and sparingly pubescent on both sides or, while young, rarely glabrescent. The variety approaches in its more extreme forms *A. stachyophyllum* Hiern, which differs chiefly in its leaves being densely villous beneath, in its larger fruits and in the often branched racemes.

Acer tetramerum, var. **elobulatum**, f. **longeracemosum** Rehder, n. forma.

Recedit a varietate praecedente racemis elongatis ad 18 cm. longis, pedicellis ad 4 cm. longis, alis cum loculo 3.5–4 cm. longis, foliis plerumque majoribus, 7–11 cm. longis, petiolis ad 8 cm. longis.

Western Szech'uan: Nin-tou-shan, west of Kuan Hsien, thickets, alt. 1800–2400 m., June 20, 1908 (No. **1896**, type); Mupin, woods, alt. 2400 m., September 1910 (No. **4104**, in part).

Differs strikingly in its very long and slender racemes from the typical var. *elobulatum*. From forma *latialatum*, which has racemes of about the same length, it differs in the pubescent leaves and in the narrower wings generally about 1 cm. broad.

Acer tetramerum, var. **tiliifolium** Rehder, n. var.

A typo recedit praecipue foliis late ovatis, basi cordatis, 5-nerviis, grossius inaequaliter v. duplicater serratis, nec incisis, nec lobulatis. Folia 4.5–7.5 longa et 3–5.5 lata, supra glabra, subtus molliter pubescentia, petiolis 2–4 cm. longis, glabris. Fructus alis angulo obtuso divergentibus, rectis, cum loculo 3.5–4 cm. longis et 8–10 mm. latis.

Western Szech'uan: Wa-ssu country, Wên-chuan Hsien, woods, alt. 2700 m., October 1910 (No. **4107**).

Closely related to the var. *elobulatum*, but easily distinguished by the broadly ovate leaves cordate and 5-nerved at the base; they resemble those of a small-leaved Linden.

Sect. LITHOCARPA Pax

Acer Franchetii Pax in *Hooker's Icon.* XIX. text to t. 1897 (1889).

Western Hupeh: north and south of Ichang, abundant, alt. 1400–1800 m., October 1907 (No. **337**, in part); Patung Hsien, woods, alt. 1200–1800 m., May and October 1907 (No. **337**, in part); Chang-lo Hsien, alt. 1200–1800 m., May 1907 (No. **337**, in part); Fang Hsien, woods, common, alt. 1500–1800 m., May, July and November 1907 (Nos. **337**, in part, **1888**); South Wushan, woods, alt. 1200–1800 m., May 1907 (No. **337**, in part); Hsing-shan Hsien, woods, common, alt. 1500–1800 m., May, June and November 1907 (No. **337**, in part). Western Szech'uan: Chiu-ting-shan, woods, alt. 1500 m., May 1908 (No. **337**, in part).

Sect. TRIFOLIATA Pax

Acer Henryi Pax in *Hooker's Icon.* XIX. text to t. 1896 (1889).

Western Hupeh: Fang Hsien, woods, common, alt. 1500–1800 m., May and June 1907 (No. **424**, in part); Chang-yang Hsien, alt. 1200–1800 m., May and June 1907 (No. **424**, in part); Patung Hsien, alt. 1200–1800 m., May 1907 (No. **424**, in part); north and south of Ichang, woods, abundant, alt. 1000–1800 m., May 1907 (No. **424**, in part); Hsing-shan Hsien, woods, alt. 1700–1800 m., May 11 and November 1907 (Nos. **424**, in part, **424**[a]).

The form which has the leaflets always coarsely toothed has been distinguished as *A. Henryi*, var. *serratum* Pampanini in *Nuov. Giorn. Bot. Ital.* n. ser. XVII. 421 (1910).

Acer sutchuense Franchet in *Jour. de Bot.* VIII. 294 (1894).

Western Hupeh: Fang Hsien, woods, rare, alt. 1800–2100 m., May and June 1907 (Nos. **1886**, **1887**); southeast of Sungpan, woods, alt. 2400–2700 m., August 1910 (No. **1886**, in part).

Acer griseum Pax in Engler, *Pflanzenreich*, Heft 8 (IV. 163), 30 (1902).

Acer nikoense, var. *griseum* Franchet in *Jour. de Bot.* VIII. 294 (1894).

Western Hupeh: Hsing-shan Hsien, woods, not common, alt. 1200–1700 m., May 14, October and November 1907 (No. **340**).

The bark is dark cinnamon-brown, peeling off in thin flakes like that of *Betula nigra*, L.

Acer nikoense Maximowicz in *Bull. Acad. Sci. St. Pétersbourg*, XII. 227; in *Mél. Biol.* VI. 370 (1867).

The typical form is known only from central Japan.

Acer nikoense, var. **megalocarpum** Rehder, n. var.

A typo recedit foliis subtus densius villosis, foliolis majoribus, medio saepe 12–16 cm. longo et brevius petiolulato, fructibus majoribus, alis loculo incluso 5–5.5 cm. longis et 15–17 mm. latis, gemmis dense cinereo-pubescentibus.

Western Hupeh: north and south of Ichang, woods, rare, alt. 1200–1800 m., May 1907 (No. **638**, in part); Hsing-shan Hsien, alt. 1500–1800 m., May and November 1907 (No. **638**, in part); Ching-lo Hsien, alt. 1200–1800 m., May 1907 (No. **638**, in part); Patung Hsien, alt. 1200–1800 m., May 1907 (No. **638** in part); no locality, May 1900 (Veitch Exped. No. 368).

The Japanese tree is smaller in every part and less pubescent than the Chinese variety.

VITACEAE.

Determined by F. GAGNEPAIN.

TETRASTIGMA Planch.

Tetrastigma serrulatum Planchon in De Candolle, *Monogr. Phaner.* V. 432 (1887).

Cissus serrulata Roxburgh, *Fl. Ind.* I. 432 (1820).
Vitis serrulata Wallich apud Miquel in *Ann. Mus. Lugd.-Bat.* I. 77 (1863).

Western Szech'uan: valley of Tung-nsi, east of Tachien-lu, on rocks, alt. 900–1200 m., August 1908 (No. **2739**).

Tetrastigma obtectum Planchon in De Candolle, *Monogr. Phaner.* V. 434 (1887). — Gagnepain in Lecomte, *Not. Syst.* I. 323 (1911).

Tetrastigma obtectum, var. **pilosum** Gagnepain, *l. c.* 324 (1911).

Western Hupeh: Hsing-shan Hsien, on rocks, common, alt. 300–900 m.; June 8, 1907 (No. **2738**). Western Szech'uan: Hung-yah Hsien, adhering to red sandstone rocks, abundant, alt. 600–900 m., September 6, 1908 (No. **878**).

CAYRATIA Juss.

Cayratia tenuifolia Gagnepain in Lecomte, *Not. Syst.* I. 348 (1911).

Vitis tenuifolia Wight & Arnott, *Prodr. Fl. Ind.* 129 (1834).
Cissus tenuifolia Heyne in Wallich, *Cat.*, ex Planchon in De Candolle, *Monogr. Phaner.* V. 563 (1887).

Kiangsi: Kuling, thickets, abundant, alt. 1200 m., July 29, 1907 (No. **1705**).

Cayratia oligocarpa Gagnepain, *l. c.* 359 (1911).

Western Hupeh: Fang Hsien, thickets, road sides, etc., alt. 300–900 m., August 1907 (No. **2737**); Hsing-shan Hsien, cliffs, etc., alt. 300–900 m., June and October 1907 (No. **342**), ravines, alt. 300–900 m., June 1907 (No. **35**).

The determination of No. 35 is somewhat doubtful on account of the absence of fruits; it is possibly a form of *C. tenuifolia* Gagnepain.

AMPELOPSIS Planch.

Ampelopsis aconitifolia Bunge, in *Mém. Sav. Étr. Acad. Sci. St. Pétersb.*, II. 86; (*Enum. Pl. Chin. Bor.* 12) (1833). — Planchon in De Candolle, *Monogr. Phaner.* V. 450 (1887).

Vitis aconitifolia Hance in *Jour. Linn. Soc.* XIII. 77 (1873).

Western Hupeh: Hsing-shan Hsien, thickets, common, alt. 600–1200 m., June 6, 1907 (No. **2735**).

Ampelopsis heterophylla Siebold & Zuccarini, var. **amurensis** Planchon, l. c. 456 (1887).

Western Szech'uan: Was-su country, Wên-chuan Hsien, thickets, alt. 1500 m., June and September 1908 (No. **2719**). Western Hupeh: Chang-yang Hsien, thickets, alt. 900–1200 m., June and September 1907 (No. **157**), alt. 600–1000 m., May and September 1907 (No. **2718**), Hsing-shan Hsien, thickets, alt. 900–1200 m., May and August 1907 (No. **159**), alt. 900–1500 m., June 6 and 8, 1907 (Nos. **2722**, **2723**); Chang-lo Hsien, thickets, alt. 900–1200 m., June and September 1907 (No. **121**), woodlands, June 1907 (No. **2721**); Fang Hsien, thickets, alt. 900–1200 m., July 1907 (No. **2724**). Kiangsi: Kuling, thickets, abundant, alt. 1200 m., July 28, 1907 (No. **1703**).

Ampelopsis heterophylla, var. **Delavayana** Gagnepain, n. comb.

Ampelopsis Delavayana Planchon in De Candolle, *Monogr. Phaner.* V. 458 (1887).

Western Hupeh: Patung Hsien, alt. 900–1000 m., October 1907 (No. **419**); Ichang, thickets, alt. 300–900 m., June and November (No. **604**); Chang-lo Hsien, thickets, alt. 600–900 m., June and September (No. **124**); Changyang Hsien, thickets, 600–900 m., June and September 1907 (No. **130**).

Foliage variable; Nos. 130 and 604 represent the form with the leaves trifoliolate, while Nos. 124 and 419 have the leaves simple like the var. *amurensis* and only occasionally divided into three leaflets.

Ampelopsis heterophylla, var. **Gentiliana** Gagnepain, n. comb.

Vitis Gentiliana Léveillé & Vaniot in *Bull. Soc. Agric. Sci. Sarthe*, LX. 38 (1905).

Western Hupeh: Chang-lo Hsien, cliffs, alt. 600–900 m., June 1907 (No. **2734**).

The leaves have either three leaflets with the lateral leaflets lobed or five leaflets with coarse and remote teeth.

Ampelopsis heterophylla, var. **cinerea** Gagnepain, n. var.

Folia 3–5 lobata sinubus obtusis v. rotundatis, utrinque dense cinereo-pubescentia.

Western Hupeh: Chang-lo Hsien, side of streams, rocks, etc., alt. 900 m., June 1907 (No. **2720**); Ichang, roadsides, alt. 300–900 m., June 1907 (No. **2736**).

Ampelopsis megalophylla Diels & Gilg in *Bot. Jahrb.* XXIX. 466 (1900).

Western Hupeh: north and south of Ichang, woods, alt. 1200–1500 m., June and September 1907 (No. **143**).

PARTHENOCISSUS Planch.

Parthenocissus Henryana Diels & Gilg in *Bot. Jahrb.* XXIX. 464 (1900).

Vitis Henryana Hemsley in *Jour. Linn. Soc.* XXIII., 132 (1886).
Psedera Henryana C. K. Schneider, *Ill. Handb. Laubholzk.* II. 318 (1909).

Western Hupeh: South Wushan, cliffs, alt. 600–900 m., August and December 1907 (No. **440**). Ichang, glens, June 6 and October 1907 (No. **454**).

Parthenocissus Thomsonii Planchon in De Candolle, *Monogr. Phaner.* V. 453 (1887).

Vitis Thomsonii Lawson in Hooker f., *Fl. Brit. Ind.* I. 657 (1875).
Parthenocissus Henryana, var. *glaucescens* Diels & Gilg in *Bot. Jahrb.* XXIX. 464 (1900).

Western Hupeh: north and south of Ichang, cliffs, alt. 600–1200 m., June and September 1907 (No. **235**); Chang-yang Hsien, alt. 900–1500 m., November 1907 (No. **752**).

Parthenocissus himalayana Planchon in De Candolle, *Monogr. Phaner.* V. 450 (1887).

Ampelopsis himalayana Royle, *Ill. Bot. Himal.* I. 149 (1839).
Vitis himalayana Lawson in Hooker f., *Fl. Brit. Ind.* I. 655 (1875).
Psedera himalayana C. K. Schneider, *Ill. Handb. Laubholzk.* II. 313 (1909)

The typical form has been reported from western China, but is not represented in the Wilson collection.

Parthenocissus himalayana, var. **rubrifolia** Gagnepain, n. comb.

Vitis rubrifolia Léveillé & Vaniot in *Bull. Soc. Agric. Sci. Sarthe*, LX. 44 (1905)
?*Parthenocissus sinensis* Diels & Gilg in *Bot. Jahrb.* XXIX. 463 (1900).

Western Szech'uan: Wa-shan, clinging to rocks, alt. 1200-1500 m., October 1907 (No. **1109**); South Wushan, adhering to rocks, alt. 900 m., September 1907 (No. **205**).

Parthenocissus Landuk Gagnepain, n. comb.

Ampelopsis heterophylla Blume, *Bijdr. Fl. Ned. Ind.* 194 (not Siebold & Zuccarini) (1825).
Cissus Landuk Hasskarl in *Flora*, XXV. Beibl. II. 39 (1842).
Vitis Landuk Miquel in *Ann. Mus. Lugd.-Bat.* I. 90 (1863).
Landukia Landuk Planchon in De Candolle, *Monogr. Phaner.* V. 446 (1887).

Western Hupeh: north and south of Ichang, cliffs, common, alt. 300–900 m., June 1907 (No. **2731**). Kiangsi: Kuling, adnate to rocks, common, alt. 1200 m., July 31, 1907 (No. **1696** *bis*). Western Szech'uan: Ta-p'ao-shan, northeast of Tachien-lu, climbing over rocks, alt. 2100–2400 m., July 1908 (No. **2730**).

The determination of No. 2730 is only provisional. There is but little difference between this species which has the leaves on the flowering branchlets always 3-foliolate and the following with the leaves on the flowering branchlets 3-lobed. Without fruits I had to distinguish these two species by this character alone.

Parthenocissus tricuspidata Planchon in De Candolle, *Monogr. Phaner.* V. 452 (1887).

Ampelopsis tricuspidata Siebold & Zuccarini in *Abhand. Akad. Münch.* IV. pt. II. 196 (1845).
Vitis inconstans Miquel in *Ann. Mus. Lugd.-Bat.* I. 91 (1863).
Quinaria tricuspidata Koehne, *Deutsche Dendr.* 398 (1893).
Psedera tricuspidata Rehder in *Rhodora*, X. 29 (1908).

Kiangsi: Kuling, common, adhering to rocks, alt. 1200 m., July 1907 (No. **1696**); Kuling, near temple, rare, climbing on rocks and trees, alt. 1200 m., July 1907 (No. **1706**). Western Hupeh: south of Ichang, ravines, alt. 900–1200 m., October 1907 (No. **464**).

VITIS L., Planch. emend.

Vitis flexuosa Thunberg in *Trans. Linn. Soc.* XI. 103 (1793). — Planchon in De Candolle, *Monogr. Phaner.* V. 347 (1887).

Vitis truncata Blume, *Bijdr. Fl. Ned. Ind.* 195 (1825).

Western Hupeh: Hsing-shan Hsien, thickets, alt. 600–1200 m., June and August 1907 (No. **170**), alt. 900–2100 m., July 1907 (No. **2714**); north and south of Ichang, common, cliffs, alt. 600–1200 m., June 1907 (No. **2725**).

Vitis flexuosa, var. **parvifolia** Gagnepain, n. var.

Vitis parvifolia Roxburgh, *Fl. Ind.* I. 662 (1832).
Vitis flexuosa, var. *Wilsonii* Veitch, *Novelties for 1908–9*, 26 (without sufficient description) (1908).

Western Hupeh: Patung Hsien, rocky places, alt. 600–900 m., May 1907 (No. **2727**); Chang-lo Hsien, rocky places, alt. 600–1200 m., May 1907 (No. **2726**).

Vitis pentagona Diels & Gilg in *Bot. Jahrb.* XXIX. 460 (1900).

Kiangsi: Kuling, thickets, common, alt. 300–600 m., August 1, 1907 (No. **1699**). Western Hupeh: north and south of Ichang, thickets, common, alt. 300–1200 m., May and September 1907 (No. **134**); Chang-lo Hsien, over rocks, alt. 600–900 m., July 1907 (No. **77**). Western Szech'uan: Tachien-lu, alt. 1200–1800 m., December 1908 (No. **1046**[a]).

No. 77 represents a small dwarfed form, resembling *V. flexuosa*, var. *parvifolia*, but the lower surface of the leaves is tomentose.

Vitis reticulata Gagnepain in Lecomte, *Not. Syst.* No. 12 (1911).

Western Hupeh: Hsing-shan Hsien, alt. 900–1800 m., June and September 1907 (No. **250**); cliffs, alt. 900–1500 m., June and October 1907 (No. **378**).

Vitis Piasezkii Maximowicz in *Bull. Acad. Sci. St. Pétersb.* XXVII. 461 (1882); in *Mél. Biol.* XI. 207.

Vitis Pagnuccii Romanet du Caillaud in *Congr. Geog. Toulouse*, 1884; in *Jour. de la Vigne* 1887, p. 283. — Planchon in De Candolle, *Monogr. Phaner.* V. 364 (1887).

Western Hupeh: north and south of Ichang, thickets, alt. 600-1500 m., May and September 1907 (Nos. **215**, **126**[a], **248**, **2717**).

No. 2717 is remarkable for its polymorphic foliage showing on the same branch the trifoliolate leaves of *V. Piasezkii* and the undivided leaves of *V. betulifolia*..

Vitis betulifolia Diels & Gilg in *Bot. Jahrb.* XXIX. 461 (1900).

Western Szech'uan: Wa-ssu country, Wên-chuan Hsien, alt. 1200–1800 m., July and September 1908 (No. **1046**); near Ta-chien-lu, alt. 1200–1800 m., October 1908 (No. **1307**); Wa-shan, thickets, alt. 1500–2100 m., June 1908 (No. **2713**). Western Hupeh: Fang Hsien, thickets, alt. 1200–1800 m., September 1907 (No. **283**); Chang-lo Hsien, alt. 900–1500 m., September 1907 (No. **150**); Hsing-shan Hsien, thickets, alt. 900–2100 m., June and September 1907 (Nos. **242**, **246**, **2715**, **2716**); Patung Hsien, alt. 900–1500 m., September 1907 (No. **126**); Fang Hsien alt. 1600 m., September 1907 (No. **286**).

The specimens agree well with the description given by Diels and Gilg, but I have not seen the type of the species. It seems to be only a form of *V. Piasezkii* Maximowicz with undivided or simply lobulate leaves.

Vitis armata Diels & Gilg in *Bot. Jahrb.* XXIX. 462 (1900).[1]

Spinovitis Davidii Romanet du Caillaud in *Compt. Rend. Acad. Paris*, XCII. 1096 (nom. nudum) (1881) — Carrière in *Rev. Hort.* 1881, 239; 1885, 55, 10; 1891, 102, 24–26. — Planchon in De Candolle, *Monogr. Phaner.* V. 365 (quasi synon.) (1887).

Vitis Davidii Foëx, *Cour. Vit.* 44 (1886). — Mouillefert, *Traité Arl. Arbriss.* II. 803 (1895). — Viala, *Ampelogr.* I. 437, t. 35 (1910).

Kiangsi: Kuling, thickets, abundant, alt. 1200 m., June 1907 (No. **1695**[a]); cultivated in plain, Kinkiang, alt. 100 m., June 1907 (No. **1695**).

Vitis armata, var. **cyanocarpa** Gagnepain, n. var.

A typo recedit aculeis rarioribus, interdum fere nullis in ramis hornotinis. An planta hybrida inter *V. armatam* et *V. betulifoliam?*

Western Hupeh: north and south of Ichang, thickets, alt. 600–1500 m., June and October 1907 (No. **409**); Fang Hsien, thickets, alt. 1500 m., September 1907 (No. **291**), alt. 900–1500 m., July 1907 (No. **2732**); Hsing-shan Hsien, alt. 1200–1500 m., June and September 1907 (No. **603**).

What is possibly the same form has been distributed by Veitch under the name *Vitis armata*, var. *Veitchii*, mentioned without sufficient description in his *Novelties for 1908–9*, 26 f.

Vitis Thunbergii Siebold & Zuccarini in *Abhand. Akad. Münch.* IV. pt. ii. 198; (*Fl. Jap. Fam. Nat.* 90) (1845). — Planchon in De Candolle, *Monogr. Phaner.* V. 333 (1887).

Vitis bryoniaefolia Hance in *Jour. Bot.* XX., 3 (not Bunge) (1882)
Vitis ficifolia Bunge in *Mém. Sav. Étr. Acad. Sci. St. Pétersb.* II. 86 (*Enum. Pl. Chin. Bor.* 12) (1833).

[1] Les descriptions de Romanet du Caillaud et Carrière concernant le *Spinovitis Davidii* ou *Vitis Davidii* sont très insuffisantes au point de vue des caractères. De plus ces auteurs ont hésité entre deux genres *Spinovitis* et *Vitis*, ce dernier cité indecidemment. Au contraire Diels et Gilg ont donné une description qui n'admet aucune equivoque. C'est la raison pour laquelle j'ai préféré aux autres plus anciennes, la combinaison plus recente *Vitis armata* Diels & Gilg.

F. GAGNEPAIN.

The descriptions of this plant by Foëx and by Mouillefert leave no possible doubt of its identity and we cannot therefore accept the name proposed by Diels & Gilg and now by Monsieur Gagnepain.

The name therefore of his variety becomes *Vitis Davidii*, var. *cyanocarpa*, n. comb.

C. S. S.

Vitis Thunbergii, var. **cinerea** Gagnepain, n. var.

A typo recedit statura minore, foliis parvis subtus cinereo-puberulis.

Western Hupeh: Hsing-shan Hsien, common, climbing or prostrate over rocks, alt. 600–1200 m., June 1907 (No. **2728**).

Allied to the following variety.

Vitis Thunbergii, var. **adstricta**, Gagnepain, n. var.

Vitis adstricta Hance in *Jour. Bot.* XX. 258 (1882).

Western Hupeh: Ichang, glens, etc., climbing or prostrate over rocks, alt. 300–600 m., May 1907 (No. **2729**).

Vitis Romanetii Romanet du Caillaud in *Compt. Rend. Acad. Paris,* XCII. 1096 (nom. nudum) (1881). — Planchon in De Candolle, *Monogr. Phaner.* V. 365 (1887).

Vitis rutilans Carrière in *Rev. Hort.* 1890, 444, t.

Western Hupeh: north and south of Ichang, thickets, alt. 900–1200 m., May 1907 (No. **2733**).

CAPRIFOLIACEAE.

Determined by ALFRED REHDER.

SAMBUCUS L.

Sambucus javanica Reinwardt ex Blume, *Bijdr. Fl. Ned. Ind.* 657 (1825). — Schwerin in *Mitt. Deutsch. Dendr. Ges.* XVIII. 50 (1909).

Western Hupeh: Patung Hsien, thickets, alt. 900–1200 m., August 1907 (No. **2520**).

Sambucus Sieboldiana Blume apud Graebner in *Bot. Jahrb.* XXIX. 584 (1901). — Schwerin in *Mitt. Deutsch. Dendr. Ges.* XVIII. 50 (1909).

Sambucus racemosa, var. *Sieboldiana* Miquel in *Ann. Mus. Lugd.-Bat.* II. 265 (1866).

Sambucus Sieboldiana Blume ex Miquel, *l. c.* (quasi synon. praeced.)

Western Hupeh: north and south of Ichang, thickets, alt. 300–900 m. (No. **2528**); Fang Hsien, abundant, alt. 1500–2400 m., June 16, 1910 (No. **4490**). Szech'uan: Sungpan, alt. 2100–2400 m., August 1910 (Nos. **4020, 4043**). South Wushan, *A. Henry* (Nos. 5532, 5533).

Sambucus Williamsii Hance, quoted as a synonym of this species by Count von Schwerin, belongs to *S. racemosa*, as Hance's original specimens show; otherwise Hance's name would have precedence, because the mentioning by Miquel of the name *S. Sieboldiana* Blume as a synonym does not constitute publication.

VIBURNUM L.

Sect. THYRSOSMA Rehd.

Viburnum Henryi Hemsley in *Jour. Linn. Soc.* XXIII. 353 (1888). — Rehder in Sargent, *Trees and Shrubs*, II. 35, t. 116 (1907).

Western Hupeh: Fang Hsien, upland thickets, alt. 1500–2100 m., June and September 1907 (No. **270**); Hsing-shan Hsien, woodlands, alt. 1800 m., July 1907 (No. **1829**). Western Szech'uan: northeast of Sungpan, thickets, alt. 2400–2700 m., August 1910 (No. **4499**).

Viburnum Henryi × erubescens.

Western Hupeh: Fang Hsien, uplands, rare, alt. 2400 m., May

27 and August 1907 (No. **1815**); Fang Hsien, uplands, June 1907 (No. **1814**, as to the flowers).

Wilson's Nos. 1814 and 1815 appear to be intermediate between *V. Henryi* and *V. erubescens*, and this together with the fact that these two species grow in the same locality where the specimens in question were collected seems to point toward a hybrid origin of these plants. The corolla is infundibuliform, but short, the tube being but little longer than the limb, while in *V. Henryi* it is shorter, and in *V. erubescens* about twice as long as the limb. The inflorescence is more like that of the typical *V. erubescens*. The leaves are membranaceous like those of *V. erubescens*, but are remotely serrulate or denticulate as in *V. Henryi*, which differs in its subcoriaceous generally narrower leaves, while the first named species is distinguished by its crenately serrate generally broader leaves.

Viburnum erubescens Wallich, *Plant. As. Rar.* II. 29, t. 134 (1830).

The Chinese specimens of *V. erubescens* differ in several respects from the Nepal forms as described by Wallich, and may be here treated as varieties as follows:

Viburnum erubescens, var. **Prattii**, n. var.

Viburnum Prattii Graebner in *Bot. Jahrb.* XXIX. 584 (1901).

Western Szech'uan: Tachien-lu, upland, alt. 2700 m., July and September 1908 (No. **1827**); Wa-ssu country, Wên-chuan Hsien, thickets, alt. 1800–2100 m., June and September 1908 (No. **805**); Nin-tou-shan, west of Kuan Hsien, alt. 2250 m., June 20, 1908 (No. **1824**); Wa-shan, thickets, rare, alt. 2400 m., July 1908 (No. **1825**); Mupin, thickets, common, alt. 2100–2500 m., June 1908 (No. **1826**); northeast of Sungpan, woodlands, alt. 2100–2700 m., August 1910 (No. **4031**).

This variety differs from the type chiefly in its broader and larger, broadly obovate or elliptic or rarely oblong-obovate leaves pubescent beneath, with the pubescence persistent at least on the veins, and in its violet-purple anthers which are yellow in the type. I have not seen the type specimen of Graebner's *V. Prattii* from Tachien-lu, but his description agrees perfectly with Wilson's No. 1827 from the same locality, and with the other specimen quoted here, as well as with Giraldi's specimens cited by Graebner which I have seen.

Viburnum erubescens, var. gracilipes Rehder, n. var.

A typo recedit praecipue foliis latioribus plerumque ovalibus basi rotundatis, inflorescentiis glabris laxioribus, elongatis, 7–12 cm. longis, floribus partim graciliter pedicellatis, tubo corollae sensim ampliato, calyce cupuliformi, fructibus angustioribus.

Western Hupeh: Fang Hsien, thickets, common, alt. 1700–2400 m., June and September 1907 (No. **305**, type); Fang Hsien, uplands, September 1907 (No. **1814**, in part, fruit); Hsing-shan Hsien, woodlands, alt. 1800–2700 m., June and October 1907 (No. **1828**); no lo-

cality (Veitch Exped. No. 1382); no locality, *A. Henry* (No. 6543). Eastern Szech'uan: South Wushan, *A. Henry* (No. 5691).

From the Szech'uan form this variety differs chiefly in its glabrescent leaves, the slender and loose inflorescence with part of the flowers on slender pedicels, the saucer-shaped calyx with very broad, often obsolete, teeth, the yellow anthers and the narrower fruits. Some specimens, however, as Nos. 1814 and 1824, approach in their narrower and more pubescent leaves the Szech'uan form, but they have yellow anthers, while some Szech'uan plants have a saucer-shaped calyx like var. *gracilipes*.[1]

Viburnum brachybotryum Hemsley in *Jour. Linn. Soc.* XXIII. 349 (1888).

Western Hupeh: ravines around Ichang, alt. 30–300 m., March 20 and July 1907 (No. 1840).

Wilson's flowering specimen bears on its label the note "flowers white functionally dioecious" and consists of two branches apparently from different plants and showing two kinds of flowers. One of the branches bears a terminal many-flowered panicle with the peduncle 6.5 cm. long; the corolla does not seem to be fully developed, the lobes are upright and slightly incurved, not spreading, the rudimentary stamens are about 1 mm. long with deformed dark colored and empty anthers, and the short thick style bears a large capitate three-lobed stigma. The other branch bears two small panicles, 1.5 and 2.5 cm. long, in the axils of the leaves of the preceding year; the corolla is rotate, about 6 mm. in diameter, with spreading lobes; the stamens are 4 mm. long and exceed somewhat the corolla-lobes, with yellow oval pollen-bearing anthers; the style is reduced to its conical base with three minute blunt points at the apex; the ovary is smaller and apparently sterile. As I have seen no other flowering specimen of the species I do not know whether dioecious flowers are the rule or whether this is only an abnormal case. No other species in the genus Viburnum is known to have diclinous or incompletely diclinous flowers.

Viburnum oliganthum Batalin in *Act. Hort. Petrop.* XIII. 372 (1894).

Western Szech'uan: Wa-ssu country, Wên-chuan Hsien, thickets, alt. 1500–1800 m., July and October 1908 (No. 1031); Mupin, thickets, alt. 1200–2250 m., May and August 1908 (No. 805[a]).

[1] In connection with these varieties another very distinct variety of *V. erubescens* from Upper Burma may be described here:

Viburnum erubescens, var. **burmanicum** Rehder, n. var.

Folia chartacea, glabra, oblonga, basi rotundata, apice subito in acumen longum falcatum producta, remote denticulata, 10–12 cm. longa et 4.5–5.5 cm. lata, supra obscure viridia, subtus pallidiora, utrinsecus 6-costata costis curvatis anastomosantibus trabiculis parallelis conspicuis conjunctis. Panicula glabra, longe pedunculata, late pyramidalis, 6–8 cm. diam. et 4–6 cm. longa; corolla infundibuliformis limbo patulo, antheris flavis semiexsertis.

Upper Burma: Kachin Hills, 1898. *Shaik Mokim* (Ex. Herb. Hort. Calcutt. in Herb. Arnold Arboretum).

This very distinct form is easily recognized by its chartaceous perfectly oblong and quite glabrous remotely denticulate leaves and by the very broad and short inflorescence.

The panicles in Wilson's specimens have usually from 10 to 20 flowers, while Batalin describes them as 7-flowered, but there seems to be no other difference between the Kansu and Szech'uan specimens.

Sect. PSEUDOTINUS Clarke

Viburnum cordifolium Wallich ex De Candolle, *Prodr.* IV. 327 (1830). — Rehder in Sargent, *Trees and Shrubs*, II. 81, t. 138 (1908).

Western Szech'uan: Wa-shan, forests and thickets, common; Mupin, forests, and Nin-tou-shan, west of Kuan Hsien, woods, alt. 2250–2700 m., June and September 1908 (No. **918**); Wên-chuan Hsien, forests, alt. 2400–2700 m., October 1910 (No. **4121**); Tachien-lu, woodlands, alt. 2100–2500 m., October 1910 (No. **4121**).

Viburnum sympodiale Graebner in *Bot. Jahrb.* XXIX. 587 (1901). — Rehder in Sargent, *Trees and Shrubs*, II. 83, t. 139 (1908).

Kiangsi: Kuling, thickets, rare, alt. 1300 m., July 31, 1907 (No. **1708**); Western Hupeh: Chang-yang Hsien, woods north and south of Ichang, alt. 1800 m., May and August 1907 (No. **294**); Hsing-shan Hsien, woods, alt. 1800 m., August 1907 (No. **294**[a]).

Sect. LANTANA De Candolle

Viburnum Veitchii C. H. Wright in *Gard. Chron.* ser. 3, XXXIII. 257 (1903).

Western Hupeh: Fang Hsien, thickets, alt. 1800–2400 m., May 28, 1907 (No. **1288**[a]); alt. 2100–2700 m., October 6, 1910 (No. **4498**). Western Szech'uan: Pan-lan-shan, west of Kuan Hsien, thickets, alt. 2100–2700 m., June 1908 (Nos. **1288**, in part, **4030**); around Tachien-lu, thickets, alt. 2700 m., October 1908 (No. **1288**, in part); around Tachien-lu, upland thickets, alt. 2700–3000 m., October 1910 (No. **4091**); Sungpan, thickets, alt. 1800–2400 m., August 1910 (No. **4030**).

The specimens from Fang Hsien and from Pan-lan-shan differ from the type in the thinner yellowish pubescence of the under side of the leaves.

Viburnum buddleifolium C. H Wright in *Gard. Chron.* ser. 3, XXXIII. 257 (1903).

Western Hupeh: Hsing-shan Hsien, thickets, not common, alt. 900 m., May and July 1907 (No. **1838**).

Viburnum shensianum Maximowicz in *Bull. Acad. Sci. St. Pétersbourg*, XXVI. 480 (1880). — Rehder in Sargent, *Trees and Shrubs*, II. 85, t. 140 (1908).

Western Hupeh: Hsing-shan Hsien, side of streams, rare, alt. 900 m., May 25, 1907 (No. **1839**).

Viburnum macrocephalum Fortune in *Jour. Hort. Soc. Lond.* II. 244 (sensu Maximowicz in *Bull. Soc. Nat. Mosc.*, liv. 24 [1879]) (1847).

Western Hupeh: Chang-lo Hsien, thickets, not common, alt. 1350 m., May 1907 (No. **1834**); Chang-yang Hsien, alt. 1200–1500 m., May 1907 (No. **1835**).

Viburnum hypoleucum Rehder in Sargent, *Trees and Shrubs*, II. 111 (1908); in Fedde, *Rep. Sp. Nov.* IX. 179 (1911).

Western Szech'uan: Yangtze banks, Wan Hsien, thickets, common, alt. 100–300 m., April 1908 (No. **1836**).

Viburnum utile Hemsley in *Jour. Linn. Soc.* XXIII. 356 (1888). — Rehder in Sargent, *Trees and Shrubs*, II. 89, t. 142 (1908).

Western Hupeh: rocky places around Ichang, alt. 100–900 m., April 1907 and June 1908 (No. **1837**).

Viburnum Rosthornii Graebner in *Bot. Jahrb.* XXIX. 586 (1901).

Northwestern Szech'uan: Wa-ssu country, Wên-chuan Hsien, thickets, rare, alt. 2100 m., July 1908 (No. **220**[b]); An Hsien, thickets, alt. 600 m., August 1910 (No. **4500**). Eastern Szech'uan: Taning Hsien, thickets, alt. 600–900 m., June 1910 (No. **4497**).

The specimens from eastern Szech'uan differ from those of western Szech'uan in the fulvous tomentum of the young branchlets and of the under side of the veins of the young leaves.

Viburnum rhytidophyllum Hemsley in *Jour. Linn. Soc.* XXIII. 355 (1888). — Rehder in Sargent, *Trees and Shrubs*, II. 39, t. 118 (1907).

Western Hupeh: north and south of Ichang, woods, alt. 1350–2250 m., May and September 1907 (No. **220**, **220**[a]).

Sect. MEGALOTINUS Maximowicz [1]

Viburnum cylindricum Hamilton ex Don, *Prodr. Fl. Nepal.* 142 (1825). — Rehder in Sargent, *Trees and Shrubs*, II. 91, t. 143 (1908).

Viburnum coriaceum Blume, *Bijdr. Fl. Ned. Ind.* 656 (1825).

[1] In my Conspectus of the Viburnums of eastern Asia (in Sargent, *Trees and Shrubs*, II. 108) I placed *V. tomentosum* and *V. Hanceanum* in the section *Pseudotinus*, but after a new study of the genus I have come to the conclusion that these two species are closer to the species of the section *Megalotinus* and particularly to *V. Colebrookianum*; this leaves *Pseudotinus* a very uniform and well defined group.

Western Hupeh: north and south of Ichang, alt. 300–1200 m., June and December 1907 (No. **697**). Western Szech'uan: Mupin, thickets, alt. 1500–1800 m., June and November 1908 (No. **697**).

Viburnum tomentosum Thunberg, *Fl. Jap.* 123 (1784).

Western Hupeh: Chang-lo Hsien, open woods, alt. 1200–1800 m., June and September 1907 (No. **135**); north and south of Ichang, woods, common, alt. 1500–2100 m., June and September 1907 (Nos. **234**, **234**[a]); Patung Hsien, woodlands, alt. 1500 m., June and September 1907 (No. **117**). Western Szech'uan: Wa-ssu country, Wên-chuan Hsien, woodlands, alt. 1800 m., May 29, 1908 (No. **1832**).

No. 117 approaches *V. tomentosum*, var. *lanceatum* Rehder from Japan, but the leaves, although narrow and rather small, are abruptly acuminate as in the type, not gradually narrowed at the apex; they also have the close set veins of the type.

Sect. TINUS Maximowicz

Viburnum Davidii Franchet in *Nouv. Arch. Mus. Paris*, sér. 2, VIII. 251 (*Pl. David.* II. 69) (1885).

Western Szech'uan: southeast of Tachien-lu, alt. 1800–2400 m., June and October 1908 (No. **963**, in part); Wa-shan, woodlands, alt. 1800–2100 m., October 1908 (No. **963**); Mupin, woodlands, alt. 1800–2400 m., June 1908 and September 1910 (No. **963**, in part).

Viburnum cinnamomifolium Rehder in Sargent, *Trees and Shrubs*, II. 31, t. 114 (1907); in Fedde, *Rep. Sp. Nov.* IX. 183 (1911).

Western Szech'uan: Mupin, thickets, alt. 1200–1500 m., October 1908 (No. **1108**); Ya-chou Fu, thickets, alt. 1000 m., September 1910 (No. **4228**).

Viburnum propinquum Hemsley in *Jour. Linn. Soc.* XXIII. 355 (1888). — Rehder in Sargent, *Trees and Shrubs*, II. 33, t. 115 (1907).

Western Hupeh: north and south of Ichang, cliffs, alt. 900–1200 m., May, June and October 1907 (No. **498**); Patung Hsien, among rocks, alt. 900 m., June 1907 (No. **1830**); Hsing-shan Hsien, cliffs, alt. 1000 m., May 25 and August 1907 (No. **1831**).

Sect. ODONTOTINUS Rehd.

Viburnum foetidum Wallich, *Pl. As. Rar.* I. 49, t. 61 (1830).

Western Szech'uan: southeast of Tachien-lu, thickets, alt. 1800 m., October 1908 (No. **1360**).

Viburnum foetidum, var. **rectangulum** (Graebner) Rehder in Sargent, *Trees and Shrubs*, II. 114 (1908).

Western Szech'uan: Mupin, thickets, alt. 900–1200 m., June and October 1908 (No. **1131**). Western Hupeh: Patung Hsien, thickets, alt. 1200 m., July 1907 (No. **1833**).

Wilson's specimens differ from the type of this variety in the broader generally elliptic leaves, but agree with it in the peculiar mode of growth, the thin texture and the nearly glabrous veins of the leaves.

Viburnum theiferum Rehder in Sargent, *Trees and Shrubs*, II. 43, t. 120 (1907); in Fedde, *Rep. Sp. Nov.* IX. 183 (1911).

Kiangsi: Kuling, thickets, abundant, alt. 1200 m., July 31, 1907 (No. **1711**). Western Hupeh: north and south of Ichang, thickets, abundant, alt. 1200–2100 m., May and September 1907 (No. **218**); Chang-lo-Hsien, thickets, alt. 1500–2100 m., September 1907 (No. **236**).

Viburnum corylifolium Hooker f. & Thomson in *Jour. Linn. Soc.* II. 174 (1858).

Western Hupeh: Chang-yang Hsien, thickets, alt. 1500 m., May 1907 (No. **447**, as to the flowers).

Wilson's No. 447 agrees well with Henry's No. 11362 from Yunnan which I have referred to this species. *V. corylifolium* is closely related to *V. dilatatum* Thunberg and may perhaps be considered a variety of it; it is chiefly distinguished by the long hispid pubescence of the petioles, inflorescence and young branchlets. It seems doubtful whether *V. dilatatum* occurs in western China, and the only Chinese specimen I have seen is from the province of Chekiang, collected near Ningpo by D. Macgregor (Herb. Arnold Arboretum); Wilson's No. 944 which I referred formerly (Sargent *Trees and Shrubs*, II. 114) to that species probably belongs to *V. brevipes* Rehder.

Viburnum hirtulum Rehder in Sargent, *Trees and Shrubs*, II. 115 (1908); in Fedde, *Rep. Sp. Nov.* IX. 184 (1911).

Kiangsi: Kuling, thickets, 900–1200 m., July 28 and August 1, 1907 (Nos. **1709**, **1712**, immature fruit).

I refer Wilson's Nos. 1709 and 1712 with some hesitation to this species, the leaves are less pubescent, nearly glabrous above and less coriaceous than in the type, but the material is too incomplete to place the specimens definitively.

Viburnum Wilsonii Rehder in Sargent, *Trees and Shrubs*, II. 115 (1908); in Fedde, *Rep. Sp. Nov.* IX. 184 (1911).

Western Szech'uan: Mupin, thickets, alt. 1500–1800 m., June and October 1908 (Nos. **1025[a]**, **1120**); Wa-ssu country, Wên-chuan Hsien, thickets, alt. 1800–2500 m., June 1908 and October 1910 (Nos. **1813**, **4196**).

These specimens differ somewhat from the type in the leaves being sparingly furnished with fasciculate hairs on the whole under surface and sometimes glabrous above, in the generally oblong-ovate shape of the leaves and in the stamens being slightly longer than the corolla lobes. The fruit is bright red, ovoid, about 8 mm. high and furnished with scattered stellate hairs; the stone is broadly ovate, much compressed, pointed, one-ribbed on the dorsal and two-ribbed on the ventral side, about 6 mm. high and 5 mm. broad. *V. hupehense* Rehder, which much resembles this species in the velutinous tomentum of the inflorescence, differs chiefly in the stipulate petioles and the denser fasciculate pubescence, while the leaves of *V. Wilsonii* have mostly fasciculate hairs on the upper surface while young, becoming glabrous at maturity and are but slightly pubescent beneath.

Viburnum brevipes Rehder, n. sp.

Frutex erectus, 2–3 m. altus ramulis junioribus dense stellato-pilosis et hispidis tertio anno glabrescentibus, griseo-brunneis. Gemmae perulis 4 exterioribus fulvo-flavescentibus sparse adpresse setulosis. Folia breviter petiolata, membranacea oblongo-obovata, rarius obovata, subito acuminata, basi late cuneata, subito in petiolum contracta, dentata ima basi excepta, 5–7 cm. longa et 2–3.5 cm. lata, supra pilis fasciculatis tuberculis minutis insidentibus conspersa, subtus fasciculato-pilosa praesertim ad venas et glandulis numerosis interspersa, utrinsecus venis 6–8 in dentes exeuntibus; petioli estipulati, 2–3 mm. longi, dense hispidi. Corymbus 5–7 cm. diam., radiis plerumque 5, fasciculato-pilosus; flores ignoti. Drupae plerumque in radiis tertii ordinis, ovoideae, rubrae; putamen ovoideum, acutum, valde compressum, circa 6 mm. altum et 4.5 mm. latum, dorso leviter bi-, ventre trisulcatum, testa minute punctulata, pallide purpureo-brunnea.

Western Hupeh: Chang-yang Hsien, thickets, alt. 1300–1800, October 1907 (No. **447**, as to the fruiting specimens, type), November 1907 (No. **676**).

Viburnum brevipes bears in the shape of the leaves and in the very short petioles a great resemblance to *V. erosum* Thunberg, which, however, is easily distinguished by the stipulate petioles, by the different, not hispid, and often very slight pubescence of the inflorescence, petioles and branchlets, the absence of the glands on the under side of the leaves and by the smaller and less compressed stone. Its nearest relationship seems to be with *V. dilatatum* Thunberg, but that species is readily distinguished by its much longer petioles and broader leaves and by the generally forked hairs of the under side of the leaves. I am inclined to refer one of Wilson's Hupeh specimens collected in 1900 (Veitch Exped. No. 944), which is in flower, provisorily to this species on account of the short petioles, but the leaves have the shape of those of *V. dilatatum*. *Viburnum brevipes* is in cultivation and may be expected to flower soon.

Viburnum ovatifolium Rehder in Sargent, *Trees and Shrubs*, II. 115 (1908); in Fedde, *Rep. Sp. Nov.* 184 (1911).

Western Hupeh: South Wushan, thickets, alt. 1500–1800 m., September 1907 (Nos. **224**, **230**); Hsing-shan Hsien, thickets, alt. 1200–1800 m., June, August and September 1907 (Nos. **240**, **394**, **1817**, **1822**); Fang Hsien, thickets, alt. 1800–2100 m., June 1907 (No. **1819**).

The Hupeh specimens differ from the type chiefly in the longer stamens, exceeding slightly the corolla-lobes, and in the occasionally broader leaves. The fruits, not yet described, are ovoid and bright red; stone ovoid, pointed, 3–6 mm. high and 4.5 mm. broad, with one dorsal and two ventral ribs; testa light purplish brown.

Viburnum betulifolium Batalin in *Act. Hort. Petrop.* XIII. 371 (1894). — Rehder in Sargent, *Trees and Shrubs*, II. 99, t. 147 (1908).

Western Hupeh: Hsing-shan Hsien, thickets, alt. 1500–2000 m., June, July and November 1907 (Nos. **590**, **1816**); north and south of Ichang, thickets, alt. 1500–1800 m., July and November 1907 (Nos. **238**[a], **249**); Patung Hsien, thickets, alt. 1500 m., July and October 1907 (No. **400**); Chang-yang Hsien, thickets, alt. 1350 m., December 1907 (No. **669**). Western Szech'uan: Wa-ssu country, Wên-chuan Hsien, alt. 2100 m., July and September 1908 (No. **1043**); Tachien-lu, thickets and open woodlands, 2100–2400 m., June, July and October 1908 and October 1910 (Nos. **1262**, **1263**, **1263**[a], **1809**, **4128**).

Wilson's No. 1043 differs rather strikingly from the type in its very small leaves with few veins and with few coarse or occasionally lanceolate and entire teeth, more pubescent corymb, smaller flowers with the stamens scarcely exceeding the corolla-lobes and in the smaller fruits.

Viburnum lobophyllum Graebner in *Bot. Jahrb.* XXIX, 589 (1901).— Rehder in Sargent, *Trees and Shrubs*, II. 101, t. 148 (1908).

Western Hupeh: Hsing-shan Hsien, thickets, alt. 1800 m., July and September 1907 (Nos. **238**, **393**); north and south of Ichang, thickets, alt. 1500–1800 m., June and October 1907 (No. **411**). Western Szech'uan: Wa-ssu country, Wên-chuan Hsien, thickets, alt. 1800–2700, October 1908 (No. **1025**); October 1910 (Nos. **4147**, **4194**); Tachien-lu, thickets, alt. 2400–2700 m., June 1908 (No. **1807**).

No. 393 seems nearest to the type. No. 238 differs in its smaller leaves, smaller flowers and smaller fruits with the stones scarcely 5 mm. high and ovoid. The seeds distributed under the same number are different and agree exactly with those of the type.

Viburnum lobophyllum, var. **flocculosum** Rehder, n. var.

Folia elliptico-ovata v. oblongo-ovata, acuminata acumine falcato, basi late cuneata, sinuato-dentata, supra glabra, subtus pilis fasciculatis albidis conspersa, costis media et secundariis fere glabris exceptis,

5–12 cm. longa et 3–6 cm. lata; petioli glabri, stipulis minutis plerumque caducis instructi v. interdum estipulati. Corymbus laxe pubescens, ovariis glandulosis, calyce et corolla extus glabris. Drupae immaturae putamine ellipsoideo complanato, utrinque acuto. Ceterum ut in typo.

Western Szech'uan: Wa-ssu country, Wên-chuan Hsien, thickets, alt. 2100 m., July 1908 (No. **1811**, type); Ta-p'ao-shan, north-east of Tachien-lu, thickets, alt. 2100–2700 m., July 3, 1908 (No. **1812**); thickets around Tachien-lu, alt. 1500–1800 m., June 1908 (No. **1808**); upland thickets, alt. 2400–3000 m., October 1910 (No. **4125**); Panlan-shan, west of Kuan Hsien, alt. 2400 m., October 1910 (Nos. **4310, 4315**).

Differs from typical *V. lobophyllum* chiefly in the slight floccose pubescence of the under side of the leaves which are usually cuneate at the base. In the shape of the leaves it bears some resemblance to *V. Wilsonii* Rehder, but is distinguished by its quite glabrous branchlets and petioles, the only slightly pubescent inflorescence, the glabrous winter-buds and the only slightly pubescent under side of the leaves. No. 1812 agrees in the shape and size of the leaflets exactly with No. 1811, the type of this variety, while No. 1808 has smaller leaves only from 5–7 mm. long.

Viburnum dasyanthum Rehder in Sargent, *Trees and Shrubs*, II. 103 t. 149 (1908); in Fedde, *Rep. Sp. Nov.* IX. 185 (1911).

Western Hupeh: Chang-yang Hsien, thickets, alt. 1200–1500 m., October 1907 (No. **463, 467**); Fang Hsien, thickets, alt. 2100 m., July 1907 (No. **1818**); Patung Hsien, thickets, common, alt. 1200–1800 m., June and September 1907 (Nos. **1820, 1821**). Western Szech'uan: Wa-shan, thickets, alt. 1800–2250 m., June 1908 (No. **1805**); Wa-ssu country, Wên-chuan Hsien, thickets, alt. 2250 m., July 1908 (No. **1810**).

Viburnum hupehense Rehder in Sargent, *Trees and Shrubs*, II. 116 (1908); in Fedde, *Rep. Sp. Nov.* IX. 185 (1911).

Western Hupeh: Hsing-shan Hsien, thickets, alt. 1500–1800 m., August and October 1907 (Nos. **237, 1823**); Fang Hsien, thickets, common, alt. 1500–1800 m., June and November 1907 (No. **601**).

Viburnum ichangense (Hemsley) Rehder in Sargent, *Trees and Shrubs*, II. 105, t. 150 (1908); in Fedde, *Rep. Sp. Nov.* IX. 186 (1911).

Kiangsi: Kuling, abundant, alt. 1200 m., July 30, 1907 (No. **1710**). Western Hupeh: north and south of Ichang, woods, alt. 1500–2100 m., May and September 1907 (Nos. **228, 239**); Hsing-shan Hsien, woodland thickets, alt. 1250–1800 m., June, September and October 1907 (Nos. **329, 392, 1804**); Fang Hsien, thickets, alt. 1800 m., Octo-

ber 1907 (No. **392**[a]); Wushan Hsien, thin oak woods, alt. 1800 m., September 1907 (No. **221**). Western Szech'uan: Wa-ssu country, Wên-chuan Hsien, thickets, alt. 2100 m., July 1908 (No. **1806**); October 1910 (No. **4150**). Chekiang: Ningpo, *D. Macgregor* (Herb. Arnold Arboretum).[1]

Sect. OPULUS De Candolle

Viburnum Sargentii Koehne in *Gartenfl.* XLVIII. 341 (1899).—Rehder in Sargent, *Trees and Shrubs*, I. 83, t. 42 (1908).

Western Hupeh: Fang Hsien, thickets, alt. 1800–2400 m., July and October 1907 (No. **281**, in part); Hsing-shan Hsien, thickets, June 1907 (No. **281**, in part).

The specimen from Hsing-shan Hsien (in bud) represents the typical form, while those from Fang Hsien (flower and fruits) represent the var. *calvescens* Rehder.

Viburnum kansuense Batalin in *Act. Hort. Petrop.* XIII. 372 (1894).

Western Szech'uan: around Tachien-lu, thickets, rare, alt. 1500–2250 m., June and October 1908 (No. **859**, in part); Sungpan, thickets, alt. 2400–2800 m., September 1910 (No. **859**, in part).

The mature fruits, which have not yet been described, present a peculiar variation; they are bright red and on part of the specimens subglobose and 1 cm. long, on the other specimens oblong and 1.5 cm. long; the stone is much flattened, marked with five longitudinal lines and with scarcely noticeable ribs, ovoid and 8 mm. long and 5 mm. broad, or oblong and 12 mm. long and 6 mm. broad in the large-fruited specimens.

TRIOSTEUM L.[2]

Triosteum Fargesii Franchet in *Jour. de Bot.* X. 319 (1896).

Western Hupeh: Hsing-shan Hsien, woodlands, alt. 1800–2300 m., May 29 and August 1907 (No. **199**); Fang Hsien, uplands, alt. 2100–2700 m., June and October 1910 (Nos. **4489**, **4456**).

The fruits are white according to Wilson.

[1] An interesting addition to the Viburnums of China proper is the following species hitherto only known from Formosa.

Viburnum luzonicum Rolfe, var. **formosanum** (Hance) Rehder in Sargent, *Trees and Shrubs*, II. 97 (1908).

Fokien: without locality, *S. T. Dunn*, 1905 (Herb. Hongkong Bot. Gard., No. 2763 in Herb. Arnold Arboretum).

The specimen from Fokien differs slightly from the Formosa plant in the stamens being as long as the corolla lobes.

[2] Though *Triosteum* contains no woody species, it may find a place here to make the enumeration of the Chinese *Caprifoliaceae* collected by Wilson complete.

Triosteum himalayanum Wallich, var. **chinense** Diels & Graebner in *Bot. Jahrb.* XXIX. 590 (1901).

Western Szech'uan: Mupin, uplands, alt. 2400–2700 m., August 1908 (No. **876**); Tachien-lu, uplands, alt. 3000–3600 m., September 1910 (No. **4161**).

Wilson gives the color of the fruits of No. 876 as red and of No. 4161 as white, but I cannot detect the slightest difference in the dried specimens.

Triosteum Rosthornii Diels & Graebner in *Bot. Jahrb.* XXIX. 591, f. 5, c–e (1901).

Western Hupeh: Fang Hsien, uplands, alt. 2400–2700 m., October 1908 (No. **2339**). Western Szech'uan: Wa-ssu country, Wên-chuan Hsien, uplands, alt. 2400–2800 m., July 1908 (No. **2340**).

SYMPHORICARPOS Juss.

Symphoricarpos sinensis Rehder, n. sp.

Frutex erectus 1–1.75 m. altus, glaberrimus, ramulis gracilibus, hornotinis initio viridibus v. purpurascentibus, demum rubrobrunneis, annotinis peridermate lamellis tenuibus decorticante et corticem fibrosum detegente. Gemmae parvae, brunneae, perulis pluribus exterioribus acutis. Folia ovalia v. rhombico-ovata, acuta v. obtusiuscula, basi late cuneata et sensim in petiolum gracilem attenuata integerrima, 1.5–2.5 cm. longa et 1.2–1.8 cm. lata, supra laete viridia, subtus glaucescentia, utrinsecus 4–6-costata; petioli teretes, 1–2 mm. longi. Flores sessiles, solitarii in axillis bractearum subulatarum ovariis breviorum, bracteis inferioribus interdum foliaceis et longioribus, spicas terminales 6–12-floras pedunculo 0.5–2 cm. longo insidentes formantes; ovaria lageniformia, basi bracteolis ovatis quartam partem ovarii aequantibus suffulta, quadri-locularia loculis duobus sterilibus; calycis dentes ovato-lanceolati, acuti, circa 1 mm. longi; corolla late campanulata, alba, 7 mm. longa, intus extusque glabra, lobis ovatis tubum leviter ventricosum subaequantibus; stamina filamentis paullo infra faucem affixa, corollam subaequantia, antheris oblongis albidis; stylus glaber, stamina aequans, stigmate capitato. Bacca ovoidea, 7 mm. longa, atrocoerulea, pruinosa, apice in rostrum brevem quinquedentatum subito contracta, disperma, pulpo viridi, seminibus ovoideis, 5 mm. longis, dense pilosis, albidis.

Western Hupeh: Fang Hsien, Ta-pa-shan, thickets, rare, alt. 2300 m., July 1907 (No. **718**). — In cultivation at the Arnold Arboretum.

The discovery of a Chinese *Symphoricarpos* is highly interesting, as it adds one more genus to the number of those formerly considered peculiar to the flora of North America, but in recent years found also in western and central China, as *Nyssa*, *Sassafras*, *Liriodendron*, *Decumaria* and others. In the shape of the corolla *S. sinensis* resembles most *S. orbiculatus* Michaux, but the color of the fruit and the terminal peduncled inflorescence distinguishes it from all American species.

DIPELTA Maxim.

Dipelta floribunda Maximowicz in *Bull. Acad. Sci. St. Pétersbourg*, XXIV. 51 (1877); in *Mél. Biol.* X. 78. — Spooner in *Gard. Chron.* ser. 3, XLII. 2, fig. 1 (1907). — Hemsley in *Bot. Mag.* CXXXVI. t. 8310 (1910).

Western Hupeh: Patung Hsien, woodlands, alt. 1200–1500 m., August 1907 (No. **2952**); Hsing-shan Hsien, thickets, common, alt. 1200–1500 m., May 7, 25, and July 1907 (Nos. **2953**, **2954**, **2955**); Fang Hsien, sunny places, alt. 1200–1800 m., October 1910 (No. **4424**).

Dipelta ventricosa Hemsley in *Gard. Chron.* ser. 3, XLIV. 101, fig. 37 (1908). — Hutchison in *Bot. Mag.* CXXXVI. t. 8294 (1910).

Western Szech'uan: southeast of Tachien-lu, thickets, alt. 2250 m., June 1908 (No. **2950**); Wa-shan, woodlands, alt. 2400–2700 m., June 1908 (No. **2951**); Ching-ting-shan, thickets, alt. 1200–1500 m., May 22, 1908 (No. **1036**); Mupin, woods, alt. 1800–2500 m., June and October 1908 and October 1910 (Nos. **1036**[a], **4209**); Wa-ssu country, Wên-chuan Hsien, woodlands, alt. 1800–2500, July and September 1908 (No. **1036**); northeast of Sungpan, thickets, alt. 1800–2300 m., August 1910 (No. **4032**).

Nos. 1036[a] and 2950 differ from the plant described by Hemsley and from the other specimens in the quite glabrous peduncles, pedicels and branchlets and in the less pubescent leaves. Nos. 1036 and 2950 have apparently much paler flowers ("pale purple" according to Wilson), than the type.

ABELIA R. Br.

Abelia Graebneriana Rehder, n. sp.

Abelia uniflora Hemsley in *Jour. Linn. Soc.* XXIII. 359 (in part as to the Hupeh and Szech'uan specimens, not R. Brown) (1888).
Abelia serrata Hance in *Jour. Bot.* XX. 6 (not Siebold & Zuccarini) (1882).
Linnaea uniflora Graebner in *Bot. Jahrb.* XXIX. 131 (in part as to the Hupeh and Szech'uan specimens, not A. Braun & Vatke) (1900).
Linnaea serrata Graebner in *Bot. Jahrb.* XXIX. 133 (in part as to the Chinese specimens) (1900).

Frutex gracilis ramulis fusco-purpureis, junioribus glabris v. interdum minute puberulis. Folia membranacea, ovata v. elliptico-ovata, rarius oblongo-ovata, acuminata, basi cuneata, 3–5.5 cm. longa et 1.5–3 cm. lata, basi apiceque exceptis serrulata serraturis parvis mucronulatis, supra laete viridia, plerumque praecipue ad marginem ciliatam versus sparse adpressa pilosa, subtus pallidiora, secus costam mediam et venas basin versus villosa, interdum ad costam venasque sparse pilosa, rarius fere glabra; petioli glabri, 2–4 mm. longi. Pedunculi uniflori, breves in apice ramulorum brevium plures, rarius solitarii; bracteolae ciliatae; ovaria subteretia, sparse pilosa; sepala oblongo-lanceolata v. oblongo-ovata, obtusa v. acutiuscula, glabra v. sparsissime ciliata; corolla albida v. pallide rosea, 2.5 cm. longa, campanulato-infundibuliformis e basi tubulosa fere tertiam partem corollae formante sensim ampliata, limbo subpatulo circa 2 cm. diam., extus sparse pilosula glandulosaque, fauce villosa; stylus limbum medium attingens, stamina longiora paullo superans. Achaenia subteretia, costata, 7–8 mm. longa, sparse pilosa.

Western Hupeh: Chang-lo Hsien, thickets, alt. 900–1200 m., June 1907 (No. **2017**, type); Fang Hsien, woodlands, alt. 1500–2300 m., June 11 and October 1910 (No. **4422**); without locality, May 1900 (Veitch Exped. Nos. 267, 267[a]); Ichang, *A. Henry* (No. 3436); without locality, *A. Henry* (No. 1768). Western Szech'uan: Chin-ting-shan, thickets, alt. 1200 m., May 25, 1908 (No. **2018**); Mupin, thickets, alt. 1200–1800, June 1908 and October 1910 (Nos. **2020**, **4380**); Mt. Omei, May 1904 (Veitch Exped. No. 5031); without locality, July 1904 (Veitch Exped. No. 3720).

Closely allied to *A. uniflora* R. Brown, which is easily distinguished by its subcoriaceous glabrous leaves, the 1–3-flowered inflorescence at the end of elongated branchlets and the more campanulate corolla with a shorter and wider tube. *Abelia Graebneriana* is somewhat variable in foliage and also in the flowers; the most distinct forms are represented by the following three numbers: No. 267 differs in its narrower glabrescent leaves usually only with one to three teeth on each side, the narrower ones being about 4 cm. long and 1 cm. broad, in the longer sepals, the larger corolla, nearly 3 cm. long with longer and slenderer tube, and in the lateral flowering branchlets being usually reduced to fascicles of leaves; No. 2020 has ovate, indistinctly crenulate-serrulate leaves, obtusely acuminate, and smaller flowers, scarcely exceeding 2 cm. in length; No. 4380 has much smaller leaves not exceeding 2.5 cm. and oval sepals, the flowers are wanting.

To this species is probably related *Linnaea serrata*, var. *Hegii* (Graebner [p. sp.] in sched.) Pampanini in *Nuov. Giorn. Bot. Ital.* n. ser. XVII. 722 (1910) from Shensi, *G. Giraldi*, and from Hupeh, Mts. of Fan-sien, *C. Silvestri* (No. 1825), chiefly characterized by ciliate sepals puberulous on the outside; it is possibly a distinct species.

Abelia Engleriana Rehder, n. comb.

Linnaea Engleriana Graebner in *Bot. Jahrb.* XXIX. 132 (1900).

Western Hupeh: Fang Hsien and Hsing-shan Hsien, thickets, alt. 1200–1600 m., June and September 1907 (No. **289**); Ichang, *A. Henry* (No. 1737). Szech'uan: Taning Hsien, cliffs, alt. 600–900 m., July 1910 (No. **4491**); no locality, *A. Henry* (Nos. 5563, type!, 5573); Chan-chia-shan, Nanch'uan, *A. v. Rosthorn* (No. 34).

Rosthorn's No. 34 differs from the type specimen and from Wilson's specimens, which have quite glabrous branchlets in its puberulous and sparingly pilose branchlets; and the inflorescence does not seem typical. Henry's No. 1737 resembles in foliage somewhat *A. macrotera* (Graebn.) Rehder, but the flowers are those of *A. Engleriana*, though borne at the end of short elongated branchlets.

Abelia myrtilloides, Rehder, n. sp.

Frutex metralis ramulis gracilibus, junioribus puberulis rubrobrunneis, annotinis fuscis peridermate decorticante. Folia ovata v. ovato-oblonga v. ovato-lanceolata, acuta v. obtusiuscula et plerumque mucronulata, basi late cuneata, margine revoluta et integra, 1–1.5 cm. longa et 4–7 mm. lata, supra obscure viridia, glabra pilis paucis setosis ad marginem versus exceptis, subtus pallida v. cinereo-viridia, venis inconspicuis, glabra pilis villosis ad partem inferiorem costae mediae exceptis; petioli glabri, 1 mm. longi. Flores axillares in apice ramulorum elongatorum, graciliter pedunculati pedunculis puberulis 3 mm. longis medio bracteis minutis linearibus institutis; ovarium teres, adpresse pilosum, circa 5 mm. longum; sepala 2, elliptica, ciliata, 7–9 mm. longa et 4–5 mm. lata; corolla campanulato-infundibuliformis, infra medium anguste tubulosa supra sensim ampliata, intus hirsuta, extus glabra, circa 3 cm. longa, roseo-purpurea, lobis late ovatis 4 mm. longis; stamina glabra, longiora medium limbum attingentia; stylus glaber, staminibus paullo brevior. Fructus maturi desiderantur.

Western Szech'uan: cliffs, alt. 600–700 m., June 1903, (Veitch Exped. No. 3722, type); valley of Min River near Sungpan, dry places, alt. 2100–2400 m., August 1910 (No. **4495**).

Abelia myrtilloides is closely related to *A. parvifolia* Hemsley, which is easily distinguished by its densely pubescent and glandular leaves generally broader and rounded at the base, the short-peduncled flowers and by its longer and narrower sepals. It is also allied to *A. Schumannii* Rehder, which differs in its broader and larger usually sparingly serrate and thinner leaves pilose on the upper surface, and in its smaller flowers with the tube much shorter and borne on very short peduncles.

Abelia Schumannii Rehder, n. comb.

Linnaea Schumannii Graebner in *Bot. Jahrb.* XXIX. 130 (1900).

Western Szech'uan: Wa-ssu country, Wên-chuan Hsien, thickets, alt. 1200–1800 m., July and November 1908 (No. **1230**); Min Valley, near Mao-chou, dry region, alt. 1200–1800 m., May 25, 1908 (No. **2019**); Lungan Fu, sunny places, alt. 1200–1800 m., August 1910 (No. **4494**); Tachien-lu, alt. 2700–3600 m., *A. E. Pratt* (No. 271, type!); Chinlin, Nanch'uan, river banks, August 15, 1891, *A. von Rosthorn* (No. 459).

Abelia parvifolia Hemsley in *Jour. Linn. Soc.* XXIII. 358 (1888).

Linnaea parvifolia Graebner in *Bot. Jahrb.* XXIX. 129 (1900).

Western Hupeh: hills around Ichang, common, alt. 30–300 m., July 1907 (No. **747**); Ichang, *A. Henry* (No. 4225). Western Szech'uan: Lungan Fu, rocky places, alt. 1200–1500 m., August 1910 (No. **4493**).

Abelia chinensis R. Brown in Abel, *Narrat. Jour. China*, 376, tab. (1818).

Linnaea chinensis A. Braun & Vatke in *Oesterr. Bot. Zeitschr.* XXII. 291 (1872).

Abelia Hanceana Martens apud Hance in *Ann. Sci. Nat.* sér. 5, V. 216 (1866).

Western Hupeh: around Ichang, common, alt. 600 m., July 1907 (No. **2024**); no locality, July 1900 (Veitch Exped. No. 1420); no locality, *A. Henry* (No. 35); Nant'o, *A. Henry* (No. 2688). Kwang-tung: no locality, *C. Ford* (No. 94); Lienchow River, August 19, 1887, *C. Ford* (No. 1795).

Abelia Zanderi Rehder, n. comb.

Linnaea Zanderi Graebner in *Bot. Jahrb.* XXIX. 142 (1900).

Western Szech'uan: dry regions near Mong-kong-ting, thickets, alt. 1800–2400 m., June 1908 (No. **2021**); Pan-lan-shan, west of Kuan Hsien, thickets, alt. 2100–2400, June 1908 (No. **2022**); no locality, June 1904 (Veitch Exped. No. 3721). Shensi: Han-cheng-sien, 1909, *Wm. Purdom* (No. 320). Western Hupeh: Fang Hsien, thickets, alt. 1500–2000 m., June 16, 1910 (No. **4492**).

I have not seen the type of this species, but at least one part of the specimens quoted here of this apparently very variable species agrees well with Graebner's description. The length and shape of the sepals varies considerably; in No. 3721 they are as long or slightly longer than the corolla-tube, linear-oblong and acutish, while in Nos. 2021 and 2022, they are about two thirds as long, oblanceolate and

obtuse. The peduncles in No. 3721 are 6–8 mm. long, in No. 2022 the pedicels are more or less separate so that the flowers are pedicelled and the common peduncle is sometimes very short, similar to the inflorescence of *A. biflora* Turczaninow. The leaves are also very variable; in No. 2021 they are narrowly lanceolate and quite entire, and in No. 4210 lanceolate-oblong and nearly entire, while in No. 2022 and in Purdom's No. 320 at least part of the leaves are elliptic and coarsely toothed and in No. 4492 the leaves are oblong-lanceolate and almost all serrate. The flowers are fragrant, the tube nearly tubular and the limb spreading.

Abelia umbellata, n. comb.

Linnaea umbellata Graebner & Buchwald in *Bot. Jahrb.* XXIX. 143 (1900).

Western Hupeh: Hsing-shan Hsien, woodlands, alt. 1200–1800 m., June, Nov. 1907 (No. **607**); without locality, June 1900 (Veitch Exped. No. 922). Szech'uan: *A. Henry* (No. 7083, type).

The corolla, not described by Graebner, is narrowly funnel-form or nearly tubular, white, 15–18 mm. long, with spreading limb, 3 mm. long; the style slightly exceeds the tube and the stamens just reach the mouth; the sepals are nearly as long as the tube or somewhat shorter.

The determination of Wilson's collection and other unnamed material in the herbarium of the Arnold Arboretum led me to study all the Asiatic species, and in consequence to a rearrangement of the species, differing in several points from the grouping as proposed by Maximowicz (in *Mél. Biol.* XII. 473–480), Zabel (in *Mitt. Deutsch. Dendr. Ges.* II. 32–34) and Graebner (in *Bot. Jahrb.* XXIX. 120–145). To show clearly the arrangement I have adopted, a synopsis of the whole genus is appended here.

SYNOPSIS OF THE GENUS ABELIA.

Abelia has been by several writers united with *Linnaea* and treated as a subgenus of the latter, but there does not seem to be a very convincing reason for the union of these two genera; there are no intermediate forms, and sufficient characters in the ovary and the fruit, as well as in the calyx and in the corolla and in the habit of the plants to keep *Abelia* as a distinct genus. At present 27 species of *Abelia* may be distinguished which can be divided into two sections well marked by differences in the vegetative and reproductive parts and easily recognized even without flowers or fruits. The first section *Euabelia*, with *A. chinensis* as the type, is characterized by the petioles not being dilated at the base and not enclosing the winter-buds, by the absence of recurved hispid hairs on the young branchlets, the lighter or darker brown color of the bark separating in flakes, the more or less funnel form or nearly campanulate shape of the corolla and the terete or nearly terete akenes. The second section, *Zabelia*, which I take pleasure in associating with the name of H. Zabel, who first proposed a good division of the genus into sections, is characterized by the petioles being dilated at the base with the opposite ones connate and covering the winter-buds and persistent on the branchlets of the previous year, by the young branchlets being furnished with reflexed hispid hairs or rarely glabrous, by the tubular corolla with spreading limb, by the stamens not exceeding the tube and the scarcely exserted style, and by flattened akenes usually more or less curved. The several subsections or series as here limited have well defined geographical ranges; the first, *Serratae*, is Japanese, the second and third, *Uniflorae* and *Rupestres*, range

from eastern to western China, the fourth, *Vesaleae*, is Mexican, the fifth, *Corymbosae*, is Central Asiatic, while the last, *Biflorae*, extends from Mongolia to western China.

KEY OF THE SPECIES.

* Ramuli pilis villosis v. patentibus instructi v. puberulis v. glabri, nodis non incrassatis; petioli basi non dilatati nec connati; corolla campanulato-infundibuliformis staminibus styloque faucem superantibus; achaenia teretia v. subteretia.

Sect. I. **EUABELIA.**

† Pedunculi semper biflori, solitarii in apice ramulorum lateralium brevium; ramuli solidi medulla angusta. . . . . .Subsect. 1. SERRATAE.

Sepala 5. . . . . 1. *A. spathulata.*

Sepala 2.

Folia parva ad 3 cm. longa; sepala apice 2–3-dentata; corolla 1.5 cm. longa, apicem versus sensim ampliata, limbo suberecto, rosea.

2. *A. serrata.*

Folia majora, ad 6 cm. longa; sepala apice plerumque obtusa v. obtusiuscula, rarius leviter excisa.

Achaenia pilosa; sepala ovata; folia serrata; corolla 2 cm. longa, infundibuliformis, limbo patente, lactea. . . . . 3. *A. Buchwaldii.*

Achaenia glabra; sepala lanceolata; folia parcius serrata v. fere integra.

4. *A. gymnocarpa.*

†† Pedunculi uniflori, rarius pluriflori, axillares, saepe apice ramulorum inflorescentias pluri- v. multiflores formantes.

‡ Sepala 2; stamina quam corolla breviora; pedunculi uniflori; ramuli anguste fistulosi. . . . . Subsect. 2. UNIFLORAE.

Folia acuminata.

Ramuli glabri (in *A. uniflora* interdum puberuli).

Corolla 2.5–3 cm. longa, sepalis triplo longior, plerumque e tubo angusto paullo infra medium v. medio ampliata.

Folia integra v. minute obsoleteque denticulata, 4–7 cm. longa, longe acuminata; pedunculi axillares pluriflori.

5. *A. macrotera.*

Folia serrulata v. dentata.

Corolla e medio ampliata, infra medium anguste tubularis; pedunculi uniflori, axillares in apice ramulorum elongatorum; folia parva, 1.5–2.5 cm. longa, serrulata.

6. *A. longituba.*

Corollae pars tubularis vix tertiam partem corollae formans; folia 3–6 cm. longa.

Folia subcoriacea, glabra. Pedunculi 1–3-flori in apice ramulorum elongatorum inflorescentias plurifloras formantes; corolla fere campanulata, basi breviter tubulosa.

7. *A. uniflora.*

Folia membranacea plerumque pilosa. Pedunculi uniflora in apice ramulorum brevium, corollae pars tubularis fere tertiam partem corollae formans.

8. *A. Graebneriana.*

Corolla 1.5–2 cm. longa, e tubo brevi campanulata, sepalis duplo longior; flores in apice ramulorum brevium.

9. *A. Engleriana.*

Ramuli juniores puberuli, virides; folia oblongo-lanceolata, integra v. interdum paucidentata, 1.5–3 cm. longa et 5–12 mm. lata; corolla 2 cm. longa. . . . . 10. *A. Koehneana.*

Folia acuta v. obtusa, parva, 1–2.5 cm. longa, discoloria, chartacea v. subcoriacea; pedunculi uniflori, plerumque in apice ramulorum elongatorum inflorescentias pluriflores formantes; ramuli puberuli et sparse pilosi.

Folia eglandulosa, subtus ad costam villosa. Corolla parva, 1–1.5 cm. longa, anguste infundibuliformis. . . . . 11. *A. tereticalyx.*

Corolla campanulato-infundibuliformis, 2.5 cm. longa, infra medium subito ampliata, limbo 1.5–2 cm. diam.; folia margine plana. 12. *A. Schumannii.*

Corolla infundibuliformis, 2.5 cm. longa, supra medium sensim ampliata, limbo 8 mm. diam., folia margine revoluta. 13. *A. myrtilloides.*

Folia utrinque puberula et glandulosa; corolla 2.5 cm. longa, campanulato-infundibuliformis . . . . . 14. *A parvifolia.*

‡‡ Sepala 5; stamina stylusque plus minus exserta.

Inflorescentiae axillares, bi- v. pluriflorae in apice ramulorum paniculas plerumque multiflores formantes; stamina limbum superantia; medulla ramulorum angusta, solida v. partim evanescens. Subsect. 3. RUPESTRES.

Folia parva, 5–10 mm. longa, late ovata, acutiuscula. 15. *A. Aschersoniana.*

Folia majora, ovata v. oblongo-ovata, acuta v. acuminata.

Folia concoloria, acuta, basi cuneata; sepala 8–10 mm. longa, tubo corollae parum breviora. . . . . 16. *A. rupestris.*

Folia discoloria, acuminata, basi plerumque rotundata; sepala 4–5 mm. longa, tubo corollae dimidio breviora. 17. *A. chinensis.*

Inflorescentiae axillares, uniflorae, racemos breves terminales formantes; stamina limbo breviora; medulla ramulorum angusta, solida. Subsect. 4. VESALEAE.

Corolla 4–5 cm. longa; folia crenata, ciliata, membranacea. 18. *A. floribunda.*

Corolla 1.5–2 cm. longa; folia saepissime integra, glaberrima, coriacea. 19. *A. coriacea.*

** Ramuli pilis setosis reflexis instructi, rarius glabri, nodis incrassatis, medulla ampla solida; petioli basi dilatati et connati gemmas axillares obtegentes et in ramulis annotinis speciem stipularum intrapetioliarium formantes; pedunculi bi- v. tri-, rarius pluriflori; corolla tubuloso-infundibuliformis, tubo cylindrico, limbo patente, staminibus inclusis, stylo vix exsertis; achaenia compressa, saepius curvata. . . . . Sect. II. **ZABELIA.**

Pedunculi axillares plerumque triflori in apice ramulorum paniculam subcapitatam formantes . . . . . Subsect. 5. CORYMBOSAE.

Sepala 5, filiformia, pinnato-pilosa . . . . . 20. *A. triflora.*

Sepala 4, lineari-lanceolata v. elliptica.

Sepala lineari-lanceolata, corollae tubo duplo vel quadruplo breviora. 21. *A. angustifolia.*

Sepala lanceolata v. elliptica, corollae tubo vix breviora. 22. *A. corymbosa.*

Pedunculi biflori v. rarius pluriflori in apice ramulorum plerumque brevium solitarii; sepala 4 . . . . . Subsect 6. BIFLORAE.

Pedunculi biflori.
Pedunculi nulli; pedicellis usque ad basin libera; folia plerumque serrata. 25. *A. biflora.*
Pedunculi 0.5–1.2 cm. longi.
Folia acuminata.
Folia lanceolata discoloria, integra, subtus glaberrima. 24. *A. Dielsii.*
Folia ovato-oblonga, rarius lanceolata integra v. paucidentata concoloria subtus pubescentia . . . . . 25. *A. Zanderi.*
Folia obtusa, apice crenato-serrata, glabra, subdiscoloria. 26. *A. onkocarpa.*
Pedunculi 5- ad 7-flori; folia ovato-oblonga v. ovata, acuta v. obtusiuscula. 27. *A. umbellata.*

ENUMERATION OF THE SPECIES.

Sect. I. **EUABELIA** Rehder, n. sect. (see p. 123).
Ser. 1. SERRATAE, Graebner in *Bot. Jahrb.* XXIX, 126, 131 (1900).

Biflorae Zabel in *Mitt. Deutsch. Dendr. Ges.* II. 33 (in part) (1893).

1. **Abelia spathulata** Siebold & Zuccarini, *Fl. Jap.* I. 77, t. 34, fig. 2 (1835). — Hooker f. in *Bot. Mag.* CVIII. t. 6611 (1882).
Abelia serrata A. Gray in Perry, *Narr. Exped. China Jap.* II. 313 (secundum specimen authent.) (1856).
Linnaea spathulata Graebner in *Bot. Jahrb.* XXIX. 142 (1901).
Japan: Hondo (*Maximowicz, C. Wright, C. S. Sargent, K. Watanabe, J. G. Jack, Faurie* (No. 6837, 6838); Kiusiu (*Rein* ex Graebner).

2. **Abelia serrata** Siebold & Zuccarini, *Fl. Jap.* I. 77, t. 34 (1835).
Linnaea serrata Graebner in *Bot. Jahrb.* XXIX. 133 (1900).
Japan: Hondo, *Siebold, K. Miyabe*; Shikoku, Nanokawa, Tosa, June 11, 1888, *K. Watanabe;* Kiusiu (*Siebold* ex Graebner).
Abelia serrata has sometimes been confounded with *A. uniflora* R. Brown, but that species is easily distinguished by its axillary, one-flowered or sometimes three-flowered peduncles. The Chinese specimens identified by some botanists with *A. serrata* belong to *A. Graebneriana* Rehder, a species closely related to *A. uniflora*, but in foliage rather similar to *A. serrata.*

3. **Abelia Buchwaldii** Rehder, n. comb.
Linnaea Buchwaldii Graebner in *Bot. Jahrb.* XXIX. 133 (1900).
Japan: Hondo, Nagasaki, *Maximowicz,* 1863!, Ushiroyama, Mimasaki, *S. Arimoto,* 1903.
Graebner describes the sepals as ciliate, but I find them glabrous in Maximowicz's specimen, while in Watanabe's specimen of *A. serrata* the sepals are sparingly ciliate; Arimoto's specimen which has the sepals ciliate, is without flowers and I am not sure whether it really belongs here or to the following species; the akenes are glabrous, but also in Maximowicz's specimen they are only very sparingly pilose even in a young state.

4. **Abelia gymnocarpa** Rehder, n. comb.
Linnaea gymnocarpa Graebner in *Bot. Jahrb.* XXIX. 134 (1900).
Japan: Hondo, between Kioto and Maizura, Tomba, *Doederlein* (ex Graebner); Adera, Shinano, *J. G. Jack,* September 5, 1905.
I have not seen the type specimen, but Jack's specimen from Adera, which is without flowers, seems to agree well with Graebner's description except that the sepals are not strictly lanceolate.

Ser. 2. UNIFLORAE Graebner in *Bot. Jahrb.* XXIX. 126, 129 (emend.) (1900).

5. **A. macrotera** Rehder, n. comb.

Linnaea macrotera Graebner & Buchwald in *Bot. Jahrb.* XXIX. 131 (1900).

Hupeh: *A. Henry* (Nos. 6398, type, 1893).

I refer to this species also Henry's No. 1893, though it differs slightly in the thinner, less prominently veined leaves always cuneate at the base, while in No. 6398 they are rounded on part of the branches.

6. **Abelia longituba** Rehder, n. sp.

Frutex gracilis ramulis purpureo-fuscis glabris. Folia decidua brevi-petiolata, elliptico-ovata v. oblongo-lanceolata, basi cuneata, plerumque acuminata, apice obtusiuscula mucronulataque, pauci-serrulata, supra laete viridia, glabra pilis sparsis ad marginem exceptis, subtus pallida, sparse glandulosa ad costam tantum villosula v. glabra, 1.5–2.5 cm. longa, 5–8 mm. lata. Pedunculi uniflori, axillares in apice ramulorum brevium, medio bracteis duobus subulatis ciliolatis, apice bracteolis quattuor ovatis ciliolatis instituti; sepala oblonga, obtusa 8–10 mm. longa, glabra; corolla infundibuliformis, calyce triplo longior, 3 cm. longa, infra medium anguste tubularis, e medio apicem versus ampliata, limbo patulo, 1.5–2 cm. diam., extus minute puberula, fauce intus subvillosa, staminibus longioribus styloque tubum subaequantibus. Achaenia sub anthesi 6 mm. longa, subteretia, leviter costata, glabra.

Hupeh: *A. Henry* (No. 1356).

Abelia longituba is closely related to *A. uniflora*, but from this and the other allied species easily distinguished by the long and slender tube of the corolla and the small leaves.

7. **Abelia uniflora** R. Brown in Wallich, *Pl. As. Rar.* I. 15 (1830). — Lindley in *Bot. Reg.* XXXII. text to t. 8 (1846). — Lindley & Paxton, *Flow. Gard.* II. 145, fig. 208 (1852). — *Fl. Serres*, VII. 227, fig. (1852). — Hooker in *Bot. Mag.* LXXIX. t. 4694 (1853). — Planchon in *Fl. Serres*, VIII. t. 824 (1853). — Morren in *Belg. Hort.* III. 338, t. (1853). — *Jour. Hort. Prat. Guide Jard.* XI. 129, t. (1853). — Lemaire in *Jard. Fleur.* IV. t. 380 (1854). — Maximowicz in *Bull. Acad. Sci. St. Pétersbourg* XXXI. 56 (1886); in *Mél. Biol.* XII. 476.

Linnaea uniflora, A. Braun & Vatke in *Oesterr. Bot. Zeitschr.* XXII. 291 (1872). — Graebner in *Bot. Jahrb.* XXIX. 131 (in part) (1900).

China: Fokien, *Reeves* (ex R. Brown), *R. Fortune* (ex Lindley).

Of this species I have seen only specimens from cultivated plants which agree perfectly with the figure published by Hooker. According to Maximowicz the type specimen has smaller flowers and Lindley's figure shows the leaves slightly hairy, but I do not think that the type and Lindley's plant are different from the plant now in cultivation. *Abelia uniflora* has been made to include the plant of western China now described as *A. Graebneriana*, and even the Japanese *A. serrata* Siebold & Zuccarini, but the latter differs markedly in its two-flowered terminal peduncles, and belongs to another group, and the former, though closely related, is certainly sufficiently distinct to form a separate species.

8. **Abelia Graebneriana** Rehder. See p. 118.

9. **Abelia Engleriana** (Graebn.) Rehder. See p. 120.

10. **Abelia Koehneana** Rehder, n. comb.

Linnaea Koehneana Graebner in *Bot. Jahrb.* XXIX. 132 (1900).

Szech'uan: *A. von Rosthorn* (No. 1843).

Easily distinguished from the allied species by the puberulous and green young branchlets and the very narrow leaves.

11. **Abelia tereticalyx** Rehder, n. comb.

Linnaea tereticalyx Graebner in *Bot. Jahrb.* XXIX. 130 (1900).

China: Szech'uan: Tibet frontier, alt. 3000–4500 m., *A. E. Pratt* (No. 136).

Of this species I have seen only a specimen of Pratt's No. 136 without fully developed flowers. It seems closely related to *A. Schumannii*, but differs in the smaller flowers and in the narrower leaves.

12. **Abelia Schumannii** (Graebn.) Rehder. See p. 121.

13. **Abelia myrtilloides** Rehder. See p. 120.

Ser. 3. RUPESTRES Zabel in *Mitt. Deutsch. Dendr. Ges.* II. 33 (emend.) (1893).

15. **A. Aschersoniana** Rehder, n, comb.

Linnaea Aschersoniana Graebner in *Bot. Jahrb.* XXIX. 139 (1900).

China: Kwang-tung, Lantao Island, *C. Ford.*

16. **Abelia rupestris** Lindley in *Bot. Reg.* XXXII. t. 8 (1846). — Lindley & Paxton, *Flow. Gard.* II. 130, fig. 201 (1852).

Linnaea rupestris A. Braun & Vatke in *Oesterr. Bot. Zeitschr.* XXII. 291 (1872).

China: Fokien, Chamoo Hills (ex Lindley).

I have seen no specimen of this species. According to the descriptions the differences between this and the following seem very slight and both may belong to the same species.

17. **Abelia chinensis** R. Br. See p. 121.

Ser. 4. VESALEAE Zabel in *Mitt. Deutsch. Dendr. Ges.* II. 33 (1893).

18. **Abelia floribunda** Decaisne apud Lemaire in *Fl. Serres*, II. t. 5 (4) (1846). — Decaisne in *Rev. Hort.* 1847, 301, t. 16. — Hooker in *Bot. Mag.* LXXIII. t. 4316 (1847). — Lindley in *Bot. Reg.* XXXIII. t. 55 (1847). — *Florist*, II. 229, t. (1847). — *Garden*, XIII. 468, t. 128 (1878). — Visschere in *Rev. Hort. Belg.* XXII. 157, t. (1897).

Vesalea floribunda Martens & Galeotti in *Bull. Acad. Brux.* XI. 242 (1844).

Vesalea hirsuta Martens & Galeotti, *l. c.* 242 (1844).

Abelia speciosa Decaisne apud Lemaire in *Fl. Serres*, II. text to t. 5 (1846).

Abelia hirsuta Walpers, *Rep.* VI. 3 (1848).

Linnaea floribunda A. Braun & Vatke in *Oesterr. Bot. Zeitschr.* XXII. 291 (1872).

Mexico: Sierra de San Felipe, *C. G. Pringle* (No. 4649), Cerro San Felipe, *E. W. Nelson* (No. 1053).

19. **Abelia coriacea** Hemsley, *Diagn. Pl. Nov. Mex.* 53 (1878–80); *Bot. Biol. Am. Centr.* II. 4, t. 36, fig. 1–5 (1881).

Linnaea coriacea Fritsch in Engler & Prantl, *Nat. Pflanzenfam.* IV. 4, p. 166, fig. 55 (1891).

Mexico: San Louis Potosi, *C. C. Parry & E. Palmer* (No. 299); Sierra de la Silla, *C. G. Pringle* (No. 2546).

Sect. II. **ZABELIA**, n. sect. (See p. 124).

Ser. 5. CORYMBOSAE Zabel in *Mitt. Deutsch. Dendr. Ges.* II. 33 (1893).

20. **Abelia triflora** R. Brown apud Wallich, *Pl. As. Rar.* I. 14, t. 15 (1830). — Wight, *Ill.* II. 72, t. 121, C. (1850). — Lindley & Paxton, *Flow. Gard.* III. 93, t. 91 (1853). — Lemaire in *Jard. Fleur.* III. tab. 319 (1853). — Briot in *Rev. Hort.* 1871, 510, t. — Hemsley in *Garden*, X. 58, t. 29 (1876). — Lauche, *Deutsch. Dendr.* 199, fig. 71 (1880). — *Gard. Chron.* ser. 2, XVI. 169, fig. 34 (1881). — Pucci in *Bull. Soc. Tosc. Ort.* XIX. 152, t. 5 (1894).

Himalayas: Kumaon, *Hooker & Thomson, R. Strachey & Winterbottom.* — In cultivation.

A. triflora, var. **parvifolia** Clarke in Hooker, *Fl. Brit. Ind.* III. 9 (1882).
Linnaea triflora, var. *β parvifolia* Graebner & Buchwald in *Bot. Jahrb.* XXIX. 135 (1900).
Western Himalayas: Jhelum Valley and Wuzaristan (Stewart ex Clarke).

21. **Abelia angustifolia** Bureau & Franchet in *Jour. de Bot.* V. 47 (1891).
Linnaea angustifolia Graebner in *Bot. Jahrb.* XXIX. 135 (1900).
Szetch'uan (ex Bureau & Franchet).

22. **Abelia corymbosa** Regel & Schmalhausen in *Act. Hort. Petrop.* V. 608 (1878).
Linnaea corymbosa Graebner in *Bot. Jahrb.* XXIX. 136 (1900).
Turkestan (ex Maximowicz). Afghanistan: Kurrum Valley, *Aitchison* (No. 341),
The specimens from Afghanistan approach the preceding species; the sepals are lanceolate, one-nerved and only about half as long as the tube of the corolla, and the leaves are oblong to lanceolate.

Ser. 5. BIFLORAE Zabel in *Mitt. Deutsch. Dendr. Ges.* II. 33 (emend.) (1893)·

23. **Abelia biflora** Turczaninow in *Bull. Soc. Nat. Mosc.* X. No. VII. 152 (*Enum. Pl. Chin. Bor.*) (1837). — Franchet in *Nouv. Arch. Mus. Paris*, sér. 2, VI. 29, t. 11 (*Pl. David.* I. 149) (1883). — Komarov in *Act. Hort. Petrop.* XXV. 515 (1907).
Abelia Davidii Hance in *Jour. Bot.* VI. 329 (1868), XIII. 132 (1875).
Abelia shikokiana Makino in *Tokyo Bot. Mag.* VI. 55 (nom. nudum) (1892); VII. 286 (quasi synon. of *A. biflora*) (1893).
Linnaea biflora Koehne, *Deutsch. Dendr.* 559 (1893).
Shansi: Wutai-shan, *W. Purdom*, 1909 (No. 297). Chili (ex Franchet and Maximowicz). Mandshuria, *Maximowicz* (Iter sec. 1860.) Japan: Shikoku, (ex Makino).
The occurrence of *A. biflora* in Shikoku, as reported by Makino, seems rather unlikely, and as long as I have seen no specimens of *A. biflora* from Japan, this determination seems doubtful to me.

24. **Abelia Dielsii** Rehder, n. comb.
Linnaea Dielsii Graebner in *Bot. Jahrb.* XXIX. 140 (1910).
China: Shensi, Tai-pai-shan, *G. Giraldi* (No. 1815 ex Diels).

25. **Abelia Zanderi** (Graebn.) Rehder. See p. 121.

26. **Abelia onkocarpa**, n. comb.
Linnaea onkocarpa Graebner in *Bot. Jahrb.* XXIX. 140 (1901).
China: Shensi, Si-ku-tzui-shan, *G. Giraldi* (No. 1766 ex Diels).

27. **Abelia umbellata** (Graebn.) Rehder. See p. 122.

HYBRIDS.

Abelia chinensis × uniflora = A. grandiflora Rehder in Bailey, *Cycl. Am. Hort.* I. 1 (1900).
Abelia rupestris, var. *grandiflora* Rovelli apud André in *Rev. Hort.* 1886, 488.
Abelia rupestris hybrida Rovelli ex Schaedtler in Möller's *Deutsch. Gärtner-Zeit.* II. 223 (1887).
Abelia rupestris Hort. (*rupestris × uniflora*) Späth in *Gartenfl.* XLI. 113 t. 1366 (1892).
Abelia floribunda hybrida, A. multiflora hybrida, A. rupestris alba Hort. ex Zabel in *Mitt. Deutsch. Dendr. Ges.* II. 33 (as synon.) (1893).

Linnaea (*Abelia*) *Spaethiana* (*biflora* × *rupestris*) Graebner in *Bot. Jahrb.* XXIX. 144 (1900).

Linnaea (*Abelia*) *Perringiana* (*uniflora* × *chinensis*) Graebner, *l. c.* 145 (1900).

This hybrid is not uncommon in cultivation under the name of *A. rupestris*; five of the specimens before me from different gardens are named thus, while one is named *A. uniflora* and one *A. chinensis*. They differ only slightly from each other and are all clearly intermediate between *A. chinensis* and *A. uniflora*, and exhibit not the slightest trace of an influence of *A. biflora* which, moreover, so far as I know, has never been in cultivation. The hybrid is hardier than either of its parents, which accounts for its wider distribution in our gardens. When and where it originated I have been unable to find out. The oldest specimen I have seen was collected at Kew in 1880 by G. Nicholson under the name of *A. rupestris*; it may be the form sent out by Veitch as *A. rupestris grandiflora alba* according to André. The form described by André as *A. rupestris grandiflora* originated in the nurseries of Rovelli Brothers at Pallanza, Italy. I have before me a specimen collected in Lavallé's Arboretum at Segrez in 1887 where it was, according to the label, received from Rovelli under that name.

SPECIES TO BE EXCLUDED

Abelia splendens Hort. ex K. Koch, *Dendr.* II. 1, p. 20 (as synon.) (1872) = **Lonicera fragrantissima** Lindley & Paxton.

Abelia adenotricha Hance in *Jour. Bot.* IX. 132, 1871 (*Linnaea adenotricha* Graebner in *Bot. Jahrb.* XXIX. 144 [1900]) = **Lonicera Elisae** Franchet.

Though I have not seen Hance's specimen, I accept, after comparing his description with *Lonicera Elisae*, as correct Franchet's suggestion (*Plant. David.* I. 152) that *Abelia adenotricha* is probably the same as *Lonicera Elisae*. All the characters even including measurements agree with those of *L. Elisae*, and the peculiar inflorescence which seemed so strange to Maximowicz (*Mél. Biol.* XII. 479) may be explained, if one imagines that Hance had a specimen like the upper part of Franchet's figure of *L. Elisae*; Hance may have easily taken the solitary peduncle as originating between the two branchlets. Place and time of collection of the two species also agree. As there is no other plant among the undoubtedly complete set of David's plants sent to Paris and determined by Franchet, which corresponds to *A. adenotricha*, hardly any doubt seems to be left that Hance's name must be referred as a synonym to *L. Elisae*.

LONICERA L.

Subgen. I. CHAMAECERASUS L.

Sect. I. ISOXYLOSTEUM Rehd.

Subsect. MICROSTYLAE Rehd.

Lonicera tubuliflora Rehder, n. sp.

Frutex erectus 1–4 m. altus ramulis gracilibus, hornotinis plerumque purpurascentibus breviter et dense villosis interdum glandulis paucis interspersis, annotinis pallide flavido-brunneis, vetustioribus griseis cortice fibroso. Gemmae parvae, griseo-flavescentes, 4 perulis exteriori-

bus. Folia decidua, oblonga v. oblongo-obovata, obtusa, basi rotundata v. late cuneata, 6–10 mm. longa et 2–3 mm. lata, glabra, supra coeruleo-viridia, subtus glaucescentia, utrinsecus costis 3 v. 4 supra impressis, subtus conspicuis; petioli glabri, 0.5 mm. longi. Flores bini in pedunculis glabris petiolos aequantibus v. paullo superantibus erectis v. suberectis axillaribus in parte media v. superiore ramulorum, fragrantissimi; bracteae anguste oblongae, glabrae, 2.5–4 mm. longae, calycem duplo superantes; bracteolae in cupulam vix lobatam ovariis dimidio breviorem connatae; ovaria ovoidea, libera, 1.5 mm. longa, bilocularia; dentes calycis ovati v. oblongo-ovati, obtusi, inaequales, dimidia ovaria aequantes, sparse glanduloso-ciliati; corolla tubulosa, alba, extus glabra, tubo cylindrico fauce leviter constricto, 8–10 mm. longo, 2 mm. diam., intus supra insertionem staminum pilis longis infra pilis brevibus sparsis instructo, lobis patentibus suborbicularibus, 1.5 mm. longis; filamenta brevissima, tubo paullo supra medium affixa, antherae oblongae, connectivo loculos paullo superante; stylus glaber tubo dimidio brevior. Fructus desiderantur.

Western Szech'uan: thickets in sunny places near Mou-kong-ting, alt. 2700 m., June 1908 (No. **1883**).

Lonicera tubuliflora seems most nearly related to *L. syringantha* Maximowicz, which is easily distinguished by its much wider lilac corolla with the tube only three times as long as the limb and not constricted at the mouth, by the 3-celled ovaries, the longer lanceolate calyx-teeth, the higher cupula and the larger often acute leaves.

Lonicera thibetica Bureau & Franchet in *Jour. de Bot.* V. 48 (1891).

Western Szech'uan: uplands around Tachien-lu, alt. 2500 m., July 28, 1908 (No. **827**, in part); around Sungpan, abundant, alt. 2400–3000 m., August 1910 (No. **827**, in part).

Lonicera syringantha Maximowicz in *Bull. Acad. Sci. St. Pétersbourg*, XXIV. 49; in *Mél. Biol.* X. 77 (1877).

Western Szech'uan: upland thickets, Ta p'ao shan, northeast of Tachien-lu, alt. 3600 m., July 6, 1908 (No. **1872**); Pan-lan-shan, west of Kuan-Hsien, alt. 3600 m., June 24, 1908 (No. **1873**).

Wilson's specimens differ slightly from the type in their shorter corolla tube, 4–5 mm. long, and in their narrower and smaller leaves broadly cuneate at the base and usually in threes. One of the branches shows the young leaves beneath and the flower buds furnished with a very slight floccose pubescence which soon disappears.

Sect. 2. ISIKA DC.

Subsect. PURPURASCENTES Rehd.

Lonicera shensiensis Rehder in Fedde, *Rep. Sp. Nov.* VI. 269 (1909).

Lonicera trichopoda, var. *shensiensis* Rehder in *Rep. Missouri Bot. Gard.* XIV. 57 (1903).

Western Hupeh: woodlands, Hsing-shan Hsien, alt. 1600–1800 m., May and July 1907 (No. **1867**).

Lonicera trichogyne Rehder, n. sp.

Frutex erectus circiter metralis ramulis junioribus sparse villosis, vetustioribus pallide griseis v. brunneo-griseis cortice fibroso. Gemmae parvae, perulis 8–10 exterioribus persistentibus. Folia decidua, oblonga v. obovata-oblonga, v. inferiora minoraque ovalia v. obovata, obtusa v. obtusiuscula, basi sensim in petiolum pubescentem, 2–4 mm. longum attenuata, 2–6 cm. longa et 13–23 mm. lata, supra laete viridia et glabra pilis paucis marginem ciliatam versus exceptis, subtus cinerascenti-viridia et villosa praesertim in venis, utrinsecus 5–6-costata. Flores bini in pedunculis gracilibus sparse villosis, 6–10 mm. longis axillaribus in parte inferiore ramulorum; bracteae lineari-lanceolatae, acuminatae, ciliatae et extus pubescentes, calycis dentes paullo superantes; bracteolae nullae; ovaria fere tota connata, 2 mm. longa, villosa uti margo calycis brevis obsolete dentata; corolla gracilis, tubulosa, supra basin leviter ventricosa, 14 mm. longa, lobis suborbicularibus suberectis; antherae lobos paullo superantes; stylus exsertus. Fructus desiderantur.

Western Szech'uan: Wa-ssu country, Wên-chuan Hsien, among rocks, alt. 2300 m., July 1908 (No. **1866**, young fruits only); eastern Szech'uan, Tchen-keou, *R. P. Farges* (flowers).

Lonicera trichogyne is closely allied to *L. stenosiphon* Franchet from Yunnan, which differs in its smaller narrow, oblong, acute leaves, pubescent on both sides, longer glabrous peduncles, larger distinctly toothed calyx and shorter stamens with the anthers reaching only to the base of the limb. The description of the flowers given above is taken from Farges' specimens, which differ from Wilson's No. 1866 in the leaves being only 12–18 mm. long.

Lonicera serpyllifolia Rehder in *Rep. Missouri Bot. Gard.* XIV. 58, t. 1, f. 1–5 (1903).

Western Szech'uan: Tachien-lu, woodlands, alt. 2400–3000 m., September 1910 (No. **4140**).

Wilson's specimen differs from the type in the nearly subulate bracts and the larger leaves and possibly does not belong here, but without flowers it is difficult to place.

Lonicera flavipes Rehder, n. sp.

Frutex erectus 1–2 m. altus ramulis gracilibus, junioribus glabris et plerumque purpurascentibus, annotinis pallide brunneis et nitidulis, vetustioribus griseis cortice fibroso. Gemmae perulis exterioribus circa 8 ovatis obtusis ciliatis et pubescentibus. Folia decidua, obovata v. obovato-oblonga v. inferiora ovalia, obtusa, basi in petiolum brevem fere glabrum flavum 2–3 mm. longum attenuata, supra flavo-viridia et sparse et adpresse pubescentia, subtus pallide flavo-viridia, pilis laxe adpressis obtecta, 2–4.5 cm. longa et 10–18 mm. lata, utrinsecus 5–6 costis conspicuis uti costa media flavidis. Flores bini in pedunculis gracilibus glabris 2–2.5 cm. longis axillaribus in parte inferiore ramulorum; bracteae lanceolatae, foliaceae, sparse ciliatae, calycis dentes superantes; bracteolae nullae; ovaria supra medium connata, margine calycis obsolete dentata trientem ovariorum aequante; corolla tubulosa, gracilis, supra basin leviter gibbosa, 11 mm. longa, albida, extus supra medium sparse patentim pilosa, intus pilis paucis longis infra insertionem staminum, lobis orbiculari-ovatis 2 mm. longis suberectis; filamenta paullo supra medium tubum affixa, glabra, 3 mm. longa, antherae 2 mm. longae, lobos medios attingentes; stylus exsertus, 15 mm. longus, pilis longis patentibus instructus basi et apice exceptis. Fructus desiderantur.

Western Hupeh: Wên-tsao Mts., Hsing-shan Hsien, woodlands, alt. 2300 m., June 5, 1908 (No. **1868**).

Most nearly related to *L. tangutica* Maxim., which differs chiefly in the smaller and narrower acute leaves nearly glabrous on the under surface or only sparingly pubescent on the veins, in petioles and veins not being yellow, in the subulate bracts not exceeding the ovaries, in the corolla glabrous on the outside, and in the style being glabrous or only furnished with a few hairs near the base.

Lonicera tangutica Maximowicz in *Bull. Acad. Sci. St. Pétersbourg*, XXIV. 48 (1877). — Wolf in *Gartenfl.* XL. 580, fig. 104–105 (1891).

Western Szech'uan: Wa-ssu country, Wên-chuan Hsien, common, alt. 1800–2400 m., August 1908 (No. **831**); Chin-ting-shan, alt. 1800–2400 m., May and September 1908 (No. **831**^{b}, in part); Wa-shan, woods, alt. 2400–3300 m., August 1908 (No. **950**).

Lonicera szechuanica Batalin in *Act. Hort. Petrop.* XIV. 172 (1895).

L. tangutica, var. *glabra* Batalin, *l. c.*

Western Szech'uan: woodlands, southeast of Tachien-lu, alt. 1800–2400 m., June and September 1908 (No. **831**[c]).

Lonicera Schneideriana Rehder, n. sp.

Frutex erectus metralis ramulis gracilibus, junioribus glabris, annotinis pallide flavido-griseis cortice fibroso. Gemmae perulis 6–8 exterioribus glabris pallide griseis. Folia decidua, obovata v. oblongo-obovata, apice rotundata v. obtusiuscula, basi sensim in petiolum gracilem glabrum 2 mm. longum attenuata, 1–2.5 cm. longa et 4–7 mm. lata, utrinque glabra, supra flavo-viridia, subtus glaucescentia. Flores bini in pedunculis gracilibus pendulis glabris circa 2.5 cm. longis axillaribus in parte inferiore ramulorum; bracteae subulatae, acutae, vix ovaria tota v. fere tota connata dimidia aequantes; bracteolae nullae; calyx campanulatus, dentibus inaequalibus saepe obsoletis, dimidia ovaria aequans, circa 1 mm. longus; corolla tubulosa, basi leviter gibbosa, 9 mm. longa, flava, extus glabra, intus pubescens, lobis suborbicularibus erectis, 2 mm. longis; filamenta glabra, paullo infra partem trientem superiorem tubi affixa, 2.5 mm. longa, antherae oblongae, 2 mm. longae, paullo limbum superantes; stylus exsertus, pubescens, 12 mm. longus. Bacca subglobosa, rubra, circa 7 mm. diam., calyce persistente coronata; semina pluria, ovoidea, leviter compressa, flavescenti-alba, 2 mm. longa, testa laevi.

Western Szech'uan: Mupin, woodlands, alt. 1600–2400 m., June and August 1908 (No. **831**[a], type); alt. 2300 m., June 1908 (Nos. **1859**, **1860**); alt. 2400–2700 m., September 1910 (No. **4214**); around Sungpan, upland, rocky places, alt. 3000–3500 m., August 1910 (No. **4023**).

Lonicera Schneideriana resembles in foliage *L. szechuanica* Batalin, which differs in the stamens being shorter than the corolla-lobes, in the longer bracts and in the glabrous style. *Lonicera shensiensis* Rehder is distinguished chiefly by the shorter stamens and the presence of bractlets, while *L. serpyllifolia* Rehder differs in the smaller somewhat hairy leaves, the ovate bracts and shorter peduncles. No. 1859 differs from the type in the generally oblanceolate leaves, 2–3 cm. long. No. 1860 is still more different but hardly sufficiently different to be made the type of another species; it has a shorter distinctly gibbous corolla, shorter calyx and glabrous style, but otherwise, particularly in the foliage, the short bracts and in the slightly exserted anthers, it agrees with the type.

I take pleasure in associating with this species the name of Mr. C. K. Schneider, whose *Illustriertes Handbuch der Laubholzkunde* contains many valuable contributions to the knowledge of Chinese trees and shrubs.

Lonicera saccata Rehder in Sargent, *Trees and Shrubs*, I. 39, pl. 20 (1902).

Western Hupeh: Chang-lo Hsien, woodlands, alt. 1600–1800 m., May and July 1907 (No. **32**); Hsing-shan Hsien, woods, abundant, alt. 1800–2700 m., May 1907 (No. **1863**); rocks in woods, not common, alt. 2300 m., May 10, 1907 (No. **1864**); Fang Hsien, woodlands, alt. 1500–2100 m., June 1910 (No. **4007**). Western Szech'uan: Chin-ting-shan, thickets, alt. 1800–2400 m., May and July 1908 (No. **831**^{b}, in part); Ta-hsing-ling, Ching-chi Hsien, thickets, alt. 2200–2700 m. (No. **1861**); thickets, summit of Nin-tou-shan, west of Kuan Hsien, alt. 2700 m. (No. **1862**); Pan-lan-shan, west of Kuan Hsien, thickets, alt. 2100–2700 m., August 1910 (No. **4038**).

Wilson's No. 1861 and 1862 from Western Szech'uan differ from the type in their shorter less saccate corolla and also in the less pubescent and generally broader leaves, those of 1861 resembling f. *Wilsonii*.

Lonicera saccata, f. **Wilsonii** Rehder in *Rep. Missouri Bot. Gard.* XIV. 60 (1903).

Western Hupeh: summit of Wên-tsao Mt., Hsing-shan Hsien, thickets, not common, alt. 2700 m., May 1907 (No. **1865**).

The specimen differs from the typical f. *Wilsonii* in its smaller leaves, generally only 1.5 cm. long.

Lonicera longa Rehder in *Rep. Missouri Bot. Gard.* XIV. 61, pl. 1, fig. 6 (1903).

Western Hupeh: Fang Hsien, woodlands, alt. 1300–1800 m., August 1907 (No. **183**); alt. 2400–2700 m., September 1910 (No. **4415**).

One of Wilson's specimens with unripe fruits fortunately had a single pair of apparently belated flowers, which gives me the opportunity to add here the description of the flowers, hitherto unknown. Flowers on slender upright peduncles sparingly pilose or glabrous; bracts linear-lanceolate exceeding the minute and indistinctly toothed calyx; bractlets wanting; corolla tubular, 10–12 mm. long, slightly gibbous above the base, glabrous outside, sparingly hairy inside below the stamens; lobes orbicular-ovate, about 1.5 mm. long, upright; stamens inserted somewhat above the middle, filaments very short, anthers oblong, 3 mm. long, not reaching the base of the limb; style exserted, very sparingly pilose below the middle.

Subsect. PILEATAE Rehd.

Lonicera gynochlamydea Hemsley in *Jour. Linn. Soc.* XXIII. 362 (1888).

Western Hupeh: north and south of Ichang, common, side of streams, alt. 600–1400 m., May and August 1907 (No. **266**).

Lonicera ligustrina Wallich in Roxburgh, *Fl. Ind.* ed. 2, II. 179 (1824). — Wight, *Icon. Pl. Ind. Or.* III. 14, pl. 1025; *Ill. Ind. Bot.* II.

72, pl. 121, B. 3 (1850). — Fritsch in Engler & Prantl, *Nat. Pflanzenfam.* IV. 4, 167, f. 57, F–I (1891).

Western Szech'uan: Mupin, watercourses, alt. 1200 m., October 1908 (No. **1135**, in part). Western Hupeh: no locality, May 1900 (Veitch Exped. No. 471).

Lonicera pileata Oliver in *Hooker's Icon.* XVI. pt. 1585 (1887). — *Gard. Chron.* ser. 3, XXXV. 243, pl. 101 (1904).

Western Hupeh: Ichang, water-courses, alt. 30–900 m., April and May 1907 (No. **1858**). Western Szech'uan: Tachien-lu, watercourses, alt. 1200–1800 m., June and August 1908 (No. **833**, in part); Washan, watercourses, alt. 1600 m., June 1908 (No. **833**, in part); Mupin, side of streams, alt. 1800 m., June and August 1908 (No. **877**); Kuan-Hsien, roadside, alt. 900 m., June 1908 (No. **1135**, in part).

Subsect. CHLAMYDOCARPI Jaub. & Spach.

Lonicera Ferdinandii Franchet, var. **leycesterioides** Zabel in *Mitt. Deutsch. Dendr. Ges.* XVII. 189 (1908).

Lonicera leycesterioides Graebner in *Bot. Jahrb.* XXXVI. Beibl. LXXXII. 100 (1905).

Western Szech'uan: thickets, Nin-tou-shan, west of Kuan Hsien, alt. 3000 m., June 1908 (No. **1874**); Mong-kong-ting, June 1908 (No. **1876**); northeast of Sungpan, thickets, alt. 2400 m., August 1910 (No. 4479).

The chief difference between this variety and the type lies in the generally larger, more oblong-ovate leaves, their softer pubescence, the narrower bracts and the less setose corolla.

As I have stated before (*Rhodora*, XI. 210), the section *Vesicariae* proposed by Komarov and adopted by me in my Synopsis of the genus must be united with the *Chlamydocarpi*; the cupula is not adnate to the base of the calyx, only firmly adhering by matted hairs, and splits at maturity disclosing the bright red berries.

Subsect. FRAGRANTISSIMAE Rehd.

Lonicera Standishii Carrière, var. **lancifolia** Rehder in *Rep. Missouri Bot. Gard.* XIV. 82 (1903).

Lonicera pseudoproterantha Pampanini in *Nuov. Giorn. Bot. Ital.* n. ser. XVII. 723, fig. 18 (1910).

Western Hupeh: Ichang, common up to 1200 m., April and June 1907 (No. **14**).

Lonicera mucronata Rehder in *Rep. Missouri Bot. Gard.* XIV. 83, t. 2, fig. 8–9 (1903); in Sargent, *Trees and Shrubs*, II. 47, t. 122 (1907).

Western Hupeh: Hsing-shan Hsien, cliffs, alt. 300–600 m., March 26 and May 24, 1907 (No. **801**).

Subsect. BRACTEATAE Hook. f. & Thoms.

Lonicera mitis Rehder in Sargent, *Trees and Shrubs*, II. 50 (1907); in Fedde, *Rep. Sp. Nov.* VI. 271 (1909).

Western Szech'uan: southeast of Tachien-lu, uplands, alt. 3600–3900 m. (No. **4139**).

As the mature leaves and fruits of this species have not been described, their description may be given here: Leaves oblong or obovate-oblong, acutish or obtuse and mucronulate, broadly cuneate at the base, 2–3 cm. long and 8–15 mm. broad, minutely velvety on both sides, margin revolute, dark green above, netted with paler veins, paler green beneath and reticulate; petioles 1–2 cm. long, puberulous. Fruits on very short peduncles 1–3 mm. long, ovoid, longer than the bracts deciduous at maturity, bluish black, usually with 3–8 seeds; seeds irregularly triangular-oblong, lustrous, dark brown, 4.5 mm. long.

This and *L. cyanocarpa* Franchet are so far the only species known of the *Bracteatae* which have blue or bluish black fruits. *Lonicera cyanocarpa*, of which the flowers are unknown, is apparently closely related, but easily distinguished by the narrower and somewhat larger coriaceous leaves, setulose-ciliate on the margin and by the ovate-lanceolate acuminate and ciliate bracts. When in fruit *L. mitis* looks in general appearance so much like *L. coerulea* that it might be taken for that species if it were not for the distinct berries.

Lonicera setifera Franchet, var. **trullifera** Rehder, n. var.

Folia quam in typo majora, 6–12 cm. longa petiolis basi valde dilatatis oppositis connatis et cupulam oblongam subtus manifeste trinervem interdum plus quam 1 cm. latam et 2.5 cm. longam formantibus.

Western Szech'uan: near summit of Nin-tou-shan, west of Kuan Hsien, alt. 2700 m., June 20, 1908 (No. **902**[a]).

The leaves of this variety have the same coarse dentation, a very unusual feature in the genus, as those of the type from Yunnan, but are nearly twice as large. As long as the type and this variety are known from a single collection each, it cannot be decided whether the peculiar dilated petioles are an essential feature of the variety or may also occur on vigorous branches of the type.

Lonicera subdentata Rehder, n. sp.

Frutex erectus 1–3 m. altus ramulis glabris, annotinis pallide brunneis v. griseo-brunneis cortice laevi. Gemmae perulis exterioribus 2 acutis circa 5 mm. longis. Folia decidua, oblongo-ovata v. elliptico-oblonga, acuminata, basi late cuneata v. rotundata, integra v. utrinque 1–3 dentibus latis obtusisque, 5–9 cm. longa et 2.5–4 cm. lata,

papyracea, supra obscure viridia pilis setosis adpressis paucis conspersa, subtus glaucescentia et hirsuta, utrinsecus 5–6-costata; petioli sparse setosi, 4 mm. longi. Flores desiderantur. Baccae ovoideae, rubrae, sparse setosae in pedunculis 5 mm. longis setosis et sparse glandulosis e basi innovationum orientibus; bracteae oblongo-ovatae, acutae, 1 cm. longae, setoso-ciliatae, ceterum glabrae; calycis dentes ovati, inaequales, plerumque obtusi, 2–3 mm. longi, setoso-ciliati; semina late oblonga, 5–6 mm. longa, compressa, flavescentia, testa laevi.

Western Szech'uan: southeast of Tachien-lu, woods, alt. 2400–2700 m, July 1908 (No. **902**).

Lonicera subdentata seems most nearly related to the preceding species and to *L. scabrida* Franchet, but both these species have the branchlets furnished with reflexed setose hairs. *Lonicera praecox* Rehder, which is somewhat similar in foliage and in its glabrous branchlets, is easily distinguished by the winter-buds having several outer roundish scales and by the glabrous ovaries.

Lonicera hispida Pallas apud Roemer & Schultes, *Syst.* V. 258 (1819).

Western Szech'uan: Pan-lan-shan, west of Kuan Hsien, alt. 2700–3000 m., June 24, 1908 (No. **1855**); Ta-p'ao-shan, northeast of Tachien-lu, thickets, alt. 2700–3000 m., June 8, 1908 (No. **1853**); Sung-pan, grass land, alt. 2700–3000 m., August 1910 (No. **4010**).

None of these specimens represent the type of the species; No. 1855 resembles in the shape of the leaves, bracts and corolla *L. chaetocarpa*, but the leaves are nearly and the ovaries quite glabrous, while No. 1853 consists of two slightly differing specimens resembling in foliage and shape of corolla somewhat *L. vaccinioides* Rehder, but the leaves, particularly on the upper surface, are sparingly hairy, the corolla is larger and the ovaries densely glandular in one specimen and glandular and setose in the other.

Lonicera chaetocarpa Rehder, n. sp.

Lonicera hispida var. *chaetocarpa* Batalin apud Rehder in *Rep. Missouri Bot. Gard.* XIV. 94 (1903).

Western Szech'uan: Wa-shan, thickets, alt. 2400 m., July and October 1908 (No. **942**); upland thicket around Tachien-lu, alt. 2400–3400 m., October 1908 (Nos. **1077, 1854**); Mupin, upland thickets, alt. 3000 m., October 1908 (No. **1077a**), thickets, alt. 2100–2500 m., June and October 1908 (No. **1857**); upland thickets, alt. 2700 m., October 1910 (No. **4230**); Wa-shan, cliffs, alt. 3000 m., July 1903 (Veitch Exped. No. 3754).

In habit and in its general appearance this species differs markedly from typical *L. hispida* Pallas, of which it has been considered a variety. It is easily distinguished by the setose and glandular ovary, the larger and wider corolla prominently saccate

at the base, the larger bracts, the larger leaves, hirsute on both sides and grayish green beneath, and by the hirsute pubescence of the whole plant.

Lonicera praecox Rehder, n. comb.

Caprifolium praecox Kuntze, *Rev. Gen. Plant.* I. 274 (1891).
Lonicera infundibulum Franchet in *Jour. de Bot.* X. 315 (1896).

Western Hupeh: Chang-yang Hsien, roadsides, alt.,1000–1500 m., April 1907 (No. **1856**); Fang Hsien, rare, alt. 1600–1700 m., June 15, 1910 (No. **4006**).

Subsect. ALPIGENAE Rehd.

Lonicera mupinensis Rehder, n. sp.

Frutex erectus, 1.5–6 m. altus ramulis junioribus sparse stipitato-glandulosis mox glabrescentibus v. fere glabris, ramis vetustioribus cinereis fibrosis. Gemmae circa 1 cm. longae, perulis 8–10 exterioribus scariosis lanceolatis acuminatis, interioribus accrescentibus foliaceis omnibus sub anthesi erectis longe persistentibus instructae. Folia elliptico-oblonga v. oblonga v. obovato-oblonga, acuminata, basi late cuneata, inferiora interdum rotundata, 6–12 cm. longa et 2.5–5.5 lata, dense molliter ciliata, supra laete viridia, initio sparse pilosa, demum fere glabra, subtus pallide viridia, ad venas venulasque pilosa, interdum glabrescentia, basin versus plerumque sparse glandulosa, utrinsecus 6–7-costata; petioli 5–8 mm. longi, sparse v. interdum densius glandulosi et sparse breviter pilosi, demum glabrescentia. Flores bini pedunculis stipitato-glandulosis v. fere glabris apice incrassatis 3.5–5 cm. longis insidentes; bracteae subulatae, glanduloso-ciliatae, ovaria disjuncta duplo v. fere duplo superantes; bracteolae liberae v. anteriora basi tantum connata, glanduloso-ciliatae, ovatae, obtusae, ovariis dimidio breviores v. et oblongae ovariis triplo breviores; corolla bilabiata, 1.5 cm. longa, extus glabra, atropurpurea, tubus manifeste gibbosus, intus dense pilosus, limbo paullo brevior, labium superius 4-lobum lobis ovatis rotundatis brevibus; stamina limbo paullo breviora filamentis basi pilosa excepta glabris quam antherae anguste oblongae longioribus; stylus stamina subaequans, infra medium pilosus. Baccae rubrae, subglobosae, 8–10 mm. diam., seminibus plerumque 2–3, ovoideis leviter compressis flavido-albidis laevibus nitidulis.

Western Szech'uan: Mupin, thickets, alt. 1800–2400 m., June and October 1908 (No. **861**, in part); alt. 2700–3000 m., October 1910 (No. **4225**); near Wa-shan, woodlands and thickets, alt. 2100–2700 m., June and September 15, 1908 (No. **861**, in part), alt. 2700–3000 m., July 1903 (Veitch Exped. No. 3741).

This species forms with *L. Webbiana* Wallich, *L. heterophylla* Decaisne, *L. heteroloba* Batalin, *L. tatsienensis* Franchet, and *L. perulata* Rehder a group of very closely related species. The first differs chiefly in the glandular pubescence, pale flowers and broader not acuminate partly reflexed bud-scales; *L. heterophylla* in the quite glabrous foliage; *L. heteroloba* and *L. tatsienensis* differ in the smaller reflexed bud-scales, in the smaller leaves being pilose on the whole under surface and usually rounded at the base and in the shorter bracts; *L. perulata* is easily distinguished by its numerous obtuse bud-scales. From all these species *L. mupinensis* differs in its upright lanceolate acuminate bud-scales; in the shape of the leaves and in the amount of pubescence it seems rather variable.

Lonicera tatsienensis Franchet in *Jour. de Bot.* X. 313 (1896).

Western Szech'uan: Pan-lan-shan, west of Kuan Hsien, alt. 2100–3000 m., June 1908 (No. **1870**), August 1910 (No. **4037**), October 1910 (No. **4319**).

One of Wilson's specimens under No. 1870 has part of the leaves deeply and irregularly lobed, but agrees otherwise with the type; another specimen under the same number and No. 4319 differ in their nearly glabrous and broader leaves.

Lonicera Hemsleyana Rehder in *Rep. Missouri Bot. Gard.* XIV. 112 (1903).

Western Hupeh: Hsing-shan Hsien, cliffs, rare, alt. 1800 m., May 1907 (No. **1871**).

No. 1871 differs from the type in the leaves being loosely pubescent beneath and sometimes rounded at the base, in the shorter cupule and in the style being glabrous near the apex.

Subsect. RHODANTHAE Maxim.

Lonicera modesta Rehder in Sargent, *Trees and Shrubs*, II. 49 (1907).

Kiangsi: Kuling, alt. 1200 m., July 2, 1907 (Nos. **1658**, **1658**[a]).

Lonicera modesta, var. **lushanensis** Rehder, n. var.

A typo recedit foliis ovalibus v. oblongis, glabris v. fere glabris.

Kiangsi: Kuling, Lushan Mountains, side of streams, common, alt. 1200 m. (Nos. **1657**, type, **1655**, **1656**).

This variety seems rather variable in pubescence and shape of the leaves; No. 1657 has the young branchlets villous and the midrib on both surfaces of the leaves and also the peduncles and bractlets pubescent; the leaves are oval to elliptic. No. 1655 is nearly glabrous except a few hairs on the petioles, the peduncles and on the branchlets just below the nodes; the leaves are elliptic to ovate-lanceolate and often acute. No. 1656 has the pubescence of the preceding specimen, but the leaves are narrowly elliptic or oblong and obtuse or acutish.

Lonicera retusa Franchet in *Jour. de Bot.* X. 313 (1896). — Rehder in Sargent, *Trees and Shrubs*, II. 49, t. 123 (1907).

Western Szech'uan: near Mong-kong Ting, thickets, side of river, alt. 2400–3000 m., June 1908 (No. **1877**).

No. 1877 differs from the type in its generally narrowly elliptic, obtuse or acutish, not retuse, leaves.

Lonicera nervosa Maximowicz in *Bull. Acad. Sci. St. Pétersbourg*, XXIV. 39 (1877).

Western Szech'uan: Ta-p'ao-shan, northeast of Tachien-lu, woods, alt. 2700–3600 m., July 1908 (No. **1880**); northeast of Sungpan, woodlands, alt. 2700–3000 m., August 1910 (No. **4011**).

Lonicera lanceolata Wallich in Roxburgh, *Fl. Ind.* ed. 2, II. 177 (1824).

Western Szech'uan: Wa-shan, woods, common, alt. 2100–2700 m., June and September 1908 (No. **927**); Mupin, woods, alt. 2300 m., September 1908 (No. **927**[a]); Wa-ssu country, Wên-chuan Hsien, woods, alt. 2200–2300 m., June and September 1908 (No. **1881**). Western Hupeh: Fang Hsien, woodlands, alt. 2200 m., September 1907 (No. **304**).

No. 304 from Hupeh differs from the type in its glabrous leaves.

Sect. 3. COELOXYLOSTEUM

Subsect. OCHRANTHAE Rehd.

Lonicera Koehneana Rehder in Sargent, *Trees and Shrubs*, I. 41, t. 21 (1902).

Western Hupeh: north and south of Ichang, thickets, common, alt. 1200–1800 m., May and July 1907 (No. **93**): Chang-lo Hsien, thickets, alt. 1500–2100 m., May and July 1907 (No. **93**[a]); Hsing-shan Hsien, woodlands, alt. 1500–2300 m., June and July 1907 (No. **98**), June 12, 1910 (No. **4478**); Fang Hsien, thickets, alt. 1800–2300 m., August 1907 (No. **198**).

Lonicera Maackii Maximowicz, var. **podocarpa** Franchet apud Rehder in *Rep. Missouri Bot. Gard.* XIV. 141 (1903).

Western Hupeh: north and south of Ichang, thickets, common, alt. 900–1500 m., May 5 and August 1907 (No. **194**); Hsing-shan Hsien, thickets, alt. 900 m., October 1907 (No. **412**); South Wushan, thickets, alt. 1200 m., October 1907 (No. **457**). Chekiang: Ningpo, *D. Macgregor*.

Lonicera deflexicalyx Batalin in *Act. Hort. Petrop.* XII. 173 (1892).

Western Szech'uan: Wa-ssu country, Wên-chuan Hsien, alt.

2400–2700 m., July and August 1908 (No. 808): near Wa-shan, thickets, alt. 2700 m., September 14, 1908 (No. 808[a]); Mupin, thickets, alt. 2400–3000 m., June and September 1908 (No. 856, in part), October 1910 (No. 4293); Nin-tou-shan, west of Kuan Hsien, thickets, alt. 2500 m., June 1907 (No. 1852); Tachien-lu, thickets, alt. 2400–3000 m., October 1910 (No. 4179).

Lonicera trichosantha Bureau & Franchet in *Jour. de Bot.* V. 48 (1891).

Lonicera ovalis Batalin in *Act. Hort. Petrop.* XIV. 170 (1895).

Western Szech'uan: around Tachien-lu, alt. 2400–3000 m., June and September 1908 (Nos. 856[a], 856[b]), October 1910 (No. 856, in part).

No. 856[b] differs in the leaves being slightly pubescent on both surfaces and more densely on the midrib beneath.

Lonicera prostrata Rehder in Sargent, *Trees and Shrubs*, II. 50 (1907); in Fedde, *Rep. Sp. Nov.* VI. 275 (1909).

Western Szech'uan: near Sungpan Ting (type locality), alt. 3000–3500 m., August and October 1910 (No. 4044); Mupin, prostrate over loamy bank, alt. 2700–3000 m., October 1910 (No. 4227).

Sect. 4. NINTOOA DC.

Subsect. BREVIFLORAE Rehd.

Lonicera crassifolia Batalin in *Act. Hort. Petrop.* XII. 172 (1892).

Western Szech'uan: near Wa-shan, thickets, alt. 1200 m., June 1908 (No. 1878).

Lonicera alseuosmoides Graebner in *Bot. Jahrb.* XXIX. 594 (1901).

Western Szech'uan: near Wa-shan, thickets, alt. 1500–1800 m., September 18, 1908 (No. 938); Chito near Tachien-lu, thickets, very rare, alt. 3000 m., July 26, 1908 (No. 1882).

Lonicera Henryi Hemsley in *Jour. Linn. Soc.* XXIII. 363 (1888).

Western Hupeh: north and south of Ichang, thickets, abundant, alt. 1200–1800 m., July and September 1907 (No. 254, in part); Chang-lo Hsien, common, alt. 1200–1800 m., July 1907 (No. 254, in part); Fang Hsien, common, alt. 1200–1400 m., July 1907 (No. 254, in part); South Wushan, alt. 1200–1800 m., July 1907 (No. 254, in part); Pa-tung Hsien, thickets, abundant, alt. 1200–1400 m., June 1907 (No. 254, in part); Hsing-shan Hsien, common, alt. 1200–1800 m., July

1907 (No. **254**, in part). Western Szech'uan: near Tachien-lu, thickets, alt. 2300 m., June 1908 (No. **1879**, in part).

Lonicera Henryi, var. **subcoriacea** Rehder, n. var.

A typo recedit foliis subcoriaceis nitidulis majoribus ovato-oblongis 6–10 cm. longis et 2.5–4 cm. latis omnino glabris costa media supra strigillosa excepta. Ramuli in parte superiore dense strigillosi, in inferiore plerumque glabri; petioli dense strigillosi, pedunculi hirti, bracteae bracteolaeque ciliatae; flores 2 cm. longi, tubo quam limbus longiore.

Western Szech'uan: Yung-ching Hsien, thickets, alt. 1800–2100 m., September 1910 (No. **4097**); Wa-ssu country, Wên-chuan Hsien, alt. 1200–1800 m., July 1908 (No. **1879**, in part); near Mong-kong Ting, thickets, alt. 1500–1800 m., June 18, 1908 (No. **1879**, in part).

In the shape of the foliage this variety resembles very much *L. fuchsioides* Hemsley, but that species is easily distinguished by the perfectly glabrous branchlets and inflorescence, by the larger flowers and by the looser and more elongated terminal inflorescence. No. 1879 forms a transition to the type, as the leaves of the lateral flowering branchlets are narrower, often slightly ciliate, and pubescent on the midrib beneath.

Subsect. LONGIFLORAE Rehd.

Lonicera similis Hemsley, var. **Delavayi** Rehder n. var.

Lonicera Delavayi Franchet in *Jour. de Bot.* X. 301 (1896).

Western Hupeh: Fang Hsien, thickets, alt. 1800 m., October 1907 (No. **589**); July 1907 (No. **1869**). Western Szech'uan: Hung-ya Hsien, sandstone boulders, alt. 300–1200 m., June and September 1908 (No. **936**).

Lonicera Delavayi differs from *L. similis* only in the absence of the pubescence, and as many specimens are intermediate between the two in the amount of pubescence, it seems more natural to treat *L. Delavayi* only as a glabrous or glabrescent variety of *L. similis*.

Lonicera japonica Thunberg, *Fl. Jap.* 89 (1784).

Western Hupeh: around Ichang, common, alt. 300–600 m., May and July 1907 (No. **1875**). Chekiang: Ningpo, *D. Macgregor*.

Subgen. 2. PERICLYMENUM L.

Subsect. PHENIANTHI Rehd.

Lonicera subaequalis Rehder in *Rep. Missouri Bot. Gard.* XIV. 172 (1903).

Western Szech'uan: Wa-shan, thickets, alt. 1500–1800 m., June 1908 (No. 940).

The fruits, which have not yet been described, are subglobose, about 7 mm. in diameter and red; the seeds ellipsoid, about 2 mm. long, whitish, with finely reticulate testa.

Subsect. EUCAPRIFOLIA Spach.

Lonicera tragophylla Hemsley in *Jour. Linn. Soc.* XXIII. 367 (1888). — Rehder in Sargent, *Trees and Shrubs*, I. 91, t. 40 (1903).

Western Hupeh: north and south of Ichang, thickets, common, alt. 1200–1800 m., August 1907 (No. 346, in part); Patung Hsien, woodlands, alt. 1100–1800 m., June 1908 (No. 346, in part); Hsing-shan Hsien, woodlands, alt. 900–1800 m., June 1908 (No. 346, in part).

Here may be added some further notes on Chinese Loniceras, based on other than Wilson's recently collected material.

Lonicera pileata Oliver, var. **linearis** Rehder, n. var.

Folia linearia v. lineari-oblonga, obtusa, membranacea, pallide viridia, 1–2.5 cm. longa et 2–4 mm. lata; corolla extus fere glabra, modice gibbosa; stamina paullo exserta.

Yunnan: Szemeo, alt. 1600 m., *A. Henry* (No. 11800).

A very distinct variety, chiefly differing from the type in the very narrow, membranaceous, light green leaves.

Lonicera fragrantissima Lindley & Paxton, *Flow. Gard.* III. 75, fig. 268 (1852).

Kwangtung: Ningpo, *D. Macgregor*.

If this specimen has been really collected from a wild plant, as it appears to have been, it would settle the question of its habitat, as *L. fragrantissima* has been known only as a cultivated plant.

Lonicera montigena Rehder, n. sp.

Frutex erectus, circa 5 decim. altus, ramulis junioribus breviter pubescentibus glandulis et pilis setosis reflexis interspersis. Gemmae acutae, 5–6 mm. longae, pallide brunneae, perulis 2 exterioribus. Folia oblonga, acuta, basi late cuneata, supra pilis laxe adpressis obtecta, subtus densius pilosa, utrinque insuper minute pubescentia glandulosaque, 1.5 cm. longa et 0.5 cm. lata (nondum perfecte evoluta); petioli minute pubescentes, glandulosi, sparse hirsuti. Flores bini in pedunculis brevibus nutantibus minute pubescentibus glandulosisque e basi innovationum orientibus; bracteae orbiculari-ovatae, obtusae, 12 mm. longae, minute pubescentes glandulosaeque marginem versus pilis longioribus instructae; bracteolae nullae; ovaria ovoidea, libera, 3 mm. alta, calyce cupuliformi dimidia ovaria vix aequante ut apex ovariorum glandulis stipitatis et pilis paucis setosis instructo; corolla infundibuliformis, 23 mm. longa, tubo gracili basi saccato supra medium ampliato, lobis patentibus, late ovatis, 6 mm. longis, extus dense pubescens et glandulosa, intus infra medium pilis sparsis brevibus praedita; stamina paullo infra medium affixa, filamentis 3 mm. longis, glabris, antheris quam filamenta paullo longioribus, oblongis, limbo paullo brevioribus; stylus glaber, corollam subaequans. Fructus desiderantur.

Szech'uan: alt. 4000 m., June 1904 (Veitch Exped. No. 375^c, in part).

Allied to *L. hispida* Pallas, which differs chiefly in the larger winter-buds, in the absence of the glandular pubescence on the leaves, bracts and branchlets, in the larger corolla only sparingly hairy outside, in the filaments being longer than the anthers and in the pilose style. *Lonicera nubigena* Rehder, distributed under the same number, is easily distinguished by its much shorter corolla, the tube being only 1 cm. long, the anthers not exceeding the mouth and the style only half as long as the tube: it is a lower and more densely branched shrub and more alpine in its general aspect than *L. montigena*.

Lonicera Tatarinovii Maximowicz in *Mém. Acad. Sci. St. Pétersbourg*, IX. 138 (*Prim. Fl. Amur.*) (1859).

Lonicera leptantha Rehder in Fedde, *Rep. Sp. Nov.* VI. 274 (1909).

Chili: Weichang, 1910, *W. Purdom* (No. 82). Shenking: no locality, June 27, 1906, *F. N. Meyer* (No. 42). Corea: Quelpaert, Hallaisan, alt. 1800–2000 m., June and July 1907, *U. Faurie* (Nos. 1843, 1844).

The form from Corea which I recently described as *L. leptantha* cannot be specifically separated from *L. Tatarinovii*, as a comparison with good flowering material recently received from Chili shows; it is hardly different enough to be separated as a variety. The ovaries of the species are usually two-thirds connate, occasionally only at the base, and the bractlets are connate into a cupula, not distinct, as stated in my Synopsis of the genus.

Lonicera affinis Hooker & Arnott, *Bot. Voy. Beechey*, 264 (1841).

Fokien: without locality, April to June 1905, *S. T. Dunn* (Herb. Hongkong Bot. Gard. No. 2777).

Lonicera affinis, var. **pubescens** Maximowicz in *Bull. Acad. Sci. St. Pétersbourg* XXIV. 37; in *Mél. Biol.* X. 58 (1877).

Fokien: without locality, April to June 1905, *S. T. Dunn* (Herb. Hongkong Bot. Gard. No. 2778).

DIERVILLA L.

Diervilla japonica De Candolle, *Prodr.* IV. 330 (1830).

D. floribunda Forbes & Hemsley in *Jour. Linn. Soc.* XXIII. 369 (not Siebold & Zuccarini) (1888).

Western Hupeh: north and south of Ichang, thickets, alt. 900–2300 m., May, June and December 1907 (No. **762**); Hsing-shan Hsien, thickets, alt. 900–1800 m., May and June 1907 (Nos. **2916**, **2917**, **2918**).

PUBLICATIONS OF THE ARNOLD ARBORETUM, No. 4

PLANTAE WILSONIANAE

AN ENUMERATION OF THE WOODY PLANTS COLLECTED IN WESTERN CHINA FOR THE ARNOLD ARBORETUM OF HARVARD UNIVERSITY DURING THE YEARS 1907, 1908, AND 1910

BY E. H. WILSON

EDITED BY

CHARLES SPRAGUE SARGENT

PART II

ISSUED, APRIL 30, 1912

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SAXIFRAGACEAE.[1]

PHILADELPHUS L.[1]

Determined by E. Koehne.

To complete the account of this genus published on p. 4–6, the determinations of a few additional specimens, chiefly from Wilson's journey during 1910, are here inserted.

Philadelphus Magdalenae Koehne in *Mitt. Deutsch. Dendr. Ges.* XIII. 83 (1904). — Schneider, *Ill. Handb. Laubholzk.* I. 369 (1905).

Western Szech'uan: uplands around Tachien-lu, alt. 3000–3300 m., October 1910 (No. **4334**, **4387**; bush 2–4 m.).

Philadelphus Wilsonii Koehne. See p. 4.

Western Szech'uan: Pan-lan-shan, west of Kuan Hsien, thickets, alt. 2700–3000 m., October 1910 (No. **4297**; bush 3 m.); uplands around Tachien-lu, alt. 3300 m., October 1910 (No. **4384**).

Philadelphus incanus Koehne. See p. 5.

Philadelphus incanus, var. **Sargentianus** Koehne in Fedde, *Rep. Nov. Sp.* X. 126 (1911).

Forma **hupehensis** Koehne, l. c.

Western Hupeh: without precise locality, June 1900 (Veitch Exped. No. 833).

Forma **kulingensis** Koehne, l. c. 127.

Kiang-si: Kuling, thickets, common, alt. 1300 m., July 23, 1007 (No. **1669**).

Philadelphus sericanthus Koehne in *Gartenfl.* XLV. 561 (1896.) — Schneider, *Ill. Handb. Laubholzk.* I. 370, fig. 236 p, 237 m–o (1906).

Western Szech'uan: Taning Hsien, thickets, alt. 1300 m., June 1910 (No. **4496**; bush 3 m., flowers white).

Philadelphus sericanthus, var. **Rehderianus** Koehne in Fedde, *Rep. Nov. Sp.* X. 127 (1911).

Western Szech'uan: around Sungpan, upland thickets, alt. 3000–3300 m., October 1910 (No. **4325**; bush 3–4 m.)

[1] See also p. 4.

DEUTZIA Thunb.[1]

Determined by Alfred Rehder.

After the publication of my Synopsis of the Chinese Deutzias (see p. 15–25) I had the opportunity of examining the material of this genus in the Herbarium of the Muséum d' Histoire Naturelle at Paris, where I found several undescribed species; and a further examination of our unnamed specimens of the Henry collection resulted in bringing to light several Deutzias, three of which proved to be undescribed. The descriptions of these new species and varieties are published here as a supplement to my Synopsis of this genus.

7. Deutzia pilosa Rehder. See p. 18.

Deutzia pilosa, var. **ochrophloeos** Rehder, n. var.

A typo recedit pilis simplicibus v. fasciculatis patentibus ramulorum inflorescentiaeque brevioribus et pallidioribus flavidis, foliis paullo longius petiolatis densius pubescentibus supra pilis plerumque 5-radiatis subtus plerumque 6-radiatis, rarius 7-radiatis conspersis, corymbis plurifloris, dentibus staminum exteriorum antheram non superantibus.

Kwei-chau: Kwei-yang, "mont du Collège à la cascade," May 18, 1898, *E. Bodinier* (No. 2216, in Herb. Mus. Paris).

This variety differs from the type chiefly in the shorter and paler yellowish pubescence, in the hairs of the lower surface having generally 6 rays and in the larger inflorescence. No. 2216 is represented in the Herb. Mus. Paris by two specimens, one having broader ovate leaves, the largest being 6 cm. long and 4 cm. broad, the other having smaller ovate-oblong leaves.

8*b*. Deutzia cinerascens Rehder, n. sp.

Frutex ramulis erectis; ramuli hornotini stellato-pilosi, annotini fusci, glabri; gemmae parvae, stellato-pilosae. Folia decidua, crassiuscula, ovata v. ovato-oblonga, longe acuminata, basi rotundata v. subcordata, denticulato-serrulata, 3–9 cm. longa et 1.5–3.5 cm. lata, supra obscure viridia, subrugulosa, pilis plerumque 5-, rarius 6-radiatis aspera, subtus cinereo-viridia, elevato-reticulata, villoso-tomentosa, pilis 5–6-radiatis radio centrali instructis obtecta, nervis utrinsecus 6–8; petioli stellato-pilosi, 3–5 mm. longi. Inflorescentiae corymbosae, multiflorae, pube homomorpha vestitae, bracteis purpurascentibus institutae, terminalis ad 10 cm. diam., sessilis, foliosa, laterales minores, plerumque pedunculatae in apice ramulorum foliorum v. interdum brevissimorum aphyllorum; pedicelli 1–2 mm. longi; flores parvi, albi; calycis tubus ut dentes dense pube homomorpha vestitus, dentes triangulari-ovati v. oblongo-ovati, acuti v. acuminulati, tubum dimidium paullo superantes, 1–1.5 mm. longi, purpurascentes; petala ovato-oblonga, margine erosa, extus stellato-pilosa, 4 mm. longa; stamina petalis dimidio breviora, erecta, subaequilonga, filamentis alatis, exterioribus apice bidentatis dentibus quam anthera brevissime stipitata brevioribus, interioribus lineari-oblongis antheram circa medium affixam gerentibus et superantibus v. eam infra apicem gerentibus et ea paullo brevioribus, apice obtusiuscula v. erosa v. obsolete bidentata; styli 3, 2.5 mm. longi, stamina subaequantes. Capsula desideratur.

Kwei-chau: gorges of the river Hoa-kiang, April 22, 1897, *E. Bodinier* (No. 1569, in Herb. Mus. Paris); near Hoang-ko-ch'ou (Tchen-lin), April 1898, *J. Liguin* (*E. Bodinier*, No. 1569, in Herb. Mus. Paris).

[1] See also p. 6.

Allied to *D. setchuenensis* Franchet which differs in its narrower thinner leaves rounded or broadly cuneate at the base, not rugulose above, greenish and not reticulate beneath and more closely and less densely pubescent, in its shorter broadly triangular and not purple calyx-teeth and in the larger flowers.

8*c*. **Deutzia Bodinieri** Rehder, n. sp.

Frutex parvus ramis erectis gracilibus fuscis, hornotinis sparse stellato-pilosis; gemmae parvae, pauci-perulatae, stellato-pilosae. Folia chartacea, subpersistentia, ovato-oblonga v. ovato-lanceolata, acuminata, basi late cuneata, argute v. crenato-serrulata dentibus fere accumbentibus, 4–8 cm. longa et 1.8–3 cm. lata, subconcoloria, supra pilis 3–5-, plerumque 4-radiatis, subtus pilis 4–6-, plerumque 5-radiatis laxe conspersa, nervis utrinsecus circiter 5 subtus elevatis; petioli 3–4 mm. longi, sparse stellato-pilosi. Inflorescentia corymbosa, 5-9-flore, laxa, pedunculo gracili 1.5–2 cm. longo insidens, bracteis lineari-lanceolatis instructa, sparse stellato-pilosa; pedicelli graciles, 3–8 mm. longi; calycis tubus ut dentes dense albido-stellato tomentosus, dentes purpurascentes, triangulari-ovati, acuti, dimidium tubum paullo superantes; petala ovato-oblonga, extus stellato-tomentosa, alba, 5–7 mm. longa; stamina petalis triente breviora, subaequilonga, exteriora filamentis apice bidentatis dentibus obtusis anthera breviter stipitata paullo brevioribus, interiora filamentis lineari-oblongis apice obtusis v. irregulariter erosis v. denticulatis antheram circa medium affixam gerentibus; styli plerumque 4, 2–3 mm. longi. Capsula matura deest.

Kwei-chau: steep river-banks, one day's journey from Hin-y-tien, April 11, 1897, *E. Bodinier* (No. 1540, in Herb. Mus. Paris).

Most nearly related to *D. Fargesii* Franchet and *D. setchuenensis* Franchet; the first differs in its thicker, chartaceous and denticulate leaves, nearly glabrous above and furnished beneath with hairs having 6–7 rays and in the much larger and looser inflorescence, while *D. setchuenensis* is distinguished by the denser pubescence, the denticulate leaves bearing on the lower surface hairs with usually 6 rays and a central ray, and by the larger inflorescence; *D. setchuenensis* var. *longidentata* Rehder, which resembles *D. Bodinieri* in the serration and pubescence of the leaves except that the hairs beneath have sometimes 7 or 8 rays, differs further in the elongated teeth of the filaments.

8*d*. **Deutzia lancifolia** Rehder, n. sp.

Frutex ramis erectis gracilibus; ramuli hornotini laxe stellato-pilosi, annotini glabrescentes fusco-castanei cortice detersili; gemmae parvae, stellato-pilosae. Folia chartacea, subpersistentia, anguste lanceolata, acuminata, basi cuneata, serrulato-denticulata, 3–6 cm. longa et 0.5–1 cm. lata, supra obscure luteo-viridia, sparse pilis plerumque 4-radiatis conspersa, subtus pallidiora, pilis plerumque 5-radiatis, interdum 4-, rarius 6-radiatis conspersa, utrinsecus nervis 4–5 subtus vix elevatis; petioli 1–2 mm. longi, stellato-pilosi. Inflorescentia corymbosa, 3–5-flora, pedunculo gracili 1.5–3 cm. longo insidens, stellato-pilosa; pedicelli graciles, 4–8 mm. longi; calyx extus stellato-pilosus dentibus triangularibus dimidium tubum subaequantibus; petala ovato-oblonga, extus stellato-pilosa, alba, margine erosa, 8–10 mm. longa; stamina petalis triente breviora, exteriora filamentis apice bidentatis dentibus elongatis antheram brevissime stipitatam subaequantibus, interiora filamentis lineari-oblongis, apice obsolete incisis v. erosis antheram breviter stipitatam circa medium gerentibus; styli 3, 2 mm. longi. Capsula matura desideratur.

Kwei-chau: around Kwei-yang, "mont du Collège," end of April 1898, *J. Chaffanjan* (*E. Bodinier*, No. 2223, in Herb. Mus. Paris).

Easily distinguished from the allied species by the very narrow leaves; its nearest relation is apparently with *D. setchuenensis*, var. *longidentata* Rehder, which differs in its broader membraneous leaves with the stellate hairs beneath having

usually 6 rays and in the longer teeth of the filaments. *Deutzia Fargesii* Franchet is easily distinguished by the broader less finely serrate leaves with the stellate hairs beneath having generally 6 to 7 rays and by the many-flowered inflorescence.

10*b*. **Deutzia crassifolia** Rehder, n. sp.

Frutex metralis ramis ut videtur erectis; ramuli hornotini sparse stellato-pilosi, annotini glabri v. glabrescentes, purpureo-fusci, epidermate lamellis tenuibus decorticante; gemmae parvae, perulis pluribus ovatis mucronato-acuminatis stellato-pilosis. Folia breviter petiolata, coriacea, persistentia, ovata v. oblongo-ovata, rarius oblongo-lanceolata, longe acuminata, basi rotundata v. subcordata, denticulato-serrulata v. denticulata, demum margine revoluto, 3.5–5 cm. longa et 1–2.5 cm. lata, supra laete viridia, rugosa et pilis 4–5-radiatis conspersa, subtus pallidiora pilis 5–6-, rarius 7-radiatis conspersa, nervis utrinsecus 5–6 supra impressis subtus elevatis; petioli 1–3 mm. longi, stellato-pilosi. Inflorescentiae corymbosae compactae, plerumque 9-florae, terminales et axillares, dense stellato-pilosae, breviter pedunculatae et ramulis brevibus foliosis v. brevissimis foliis bracteiformibus tantum institutis insidentes; calyx extus stellato-pilosus, dentibus triangularibus 1.5 cm. longis tubum dimidium vix aequantibus; petala ovali-ovata, apice cucullata, 6 mm. longa, alba, extus stellato-pilosa; stamina subaequilonga petalis paullo breviora, filamentis late alatis, exterioribus apice bidentatis dentibus antheram breviter stipitatam aequantibus v. paullo superantibus, interioribus lineari-oblongis antheram breviter stipitatam circa medium affixam gerentibus; styli 3, staminibus breviora, 2.5 mm. longa. Capsula matura desideratur.

Yunnan: Mengtze, north mts., alt. 2000 m., *A. Henry* (No. 10978, in Herb. Arnold Arboretum).

Most nearly related to *D. coriacea* Rehder, which is easily distinguished by its spinosely dentate leaves glabrous and smooth above and borne on longer petioles.

Deutzia crassifolia, var. **humilis** Rehder, n. var.

A typo recedit praecipue foliis angustioribus minoribus, inflorescentiis paucifloris filamentis angustioribus. Frutex humilis ramis divaricatis brevibus; ramuli annotini castaneo-brunnei. Folia coriacea, persistentia, oblongo-lanceolata v. oblonga, longe acuminata, basi late cuneata, 2.5–4.5 cm. longa et 0.6–1.3 cm. lata, remote denticulato-serrulata, margine revoluto, luteo-viridia, subconcoloria, supra pilis 4–5-radiatis sparsis immersis conspersa, subtus pilis 5–7-, plerumque 6-radiatis laxe conspersa, nervis utrinsecus circiter 5 supra impressis subtus obsoletis; petioli 2 mm. longi, stellato-pilosi. Inflorescentiae axillares et terminales, 1-5-florae, stellato-pilosae, pedunculo pedicellisque brevissimis; calyx dense stellato-pilosus, dentibus late triangularibus dimidio tubo paullo v. vix brevioribus; petala oblonga, 6 mm. longa, alba; stamina petalis triente breviora, filamentis exterioribus apice bidentatis dentibus lanceolatis antheram breviter stipitatam superantibus, interioribus anguste lanceolatis interdum apice bifidis antheram circa medium affixam gerentibus; styli 3, 3 mm. longi.

Yunnan: Muang-li, March 15, 1895, *Prince Henri d'Orléans* (in Herb. Mus. Paris).

A low divaricately branched shrub smaller in every part than the type.

11*b*. **Deutzia Henryi** Rehder, n. sp.

Frutex divaricatus fere bimetralis; ramuli hornotini stellato-pilosi, fusco-brunnei. Folia chartacea subpersistentia(?), elliptico-ovata v. ovato-oblonga, acuminata, basi rotundata, denticulato-serrata dentibus angustis callosis, 4–9 cm. longa et 2–4.5 cm. lata, supra laete viridia, pilis 4–5-radiatis sparsis conspersa, subtus pallide viridia, pilis 5–6-radiatis laxe conspersa, nervis utrinsecus 4–6 subtus elevatis; petioli

2–4 mm. longi, stellato-pilosi. Inflorescentia corymbosa, pluriflora, stellato-pilosa, breviter pedunculata; calyx ut pedicelli breves extus dense stellato-pilosus dentibus late triangularibus dimidium tubum subaequantibus; petala late oblonga, 6–7 mm. longa, alba, extus stellato-pilosa; stamina petalis triente v. fere dimidio breviora, filamentis exterioribus apice bidentatis dentibus elongatis acutiusculis antheram breviter stipitatam subaequantibus v. paullo superantibus, interioribus lanceolatis antheram circa medium affixam gerentibus; styli 3, staminibus paullo breviores, 3 mm. longi. Capsula matura desideratur.

Yunnan: Szemao, mountain forests, alt. 1600 m., *A. Henry* (No. 10786, in Herb. Arnold Arboretum.)

Most nearly related to *D. Fargesii* Franchet, which differs in its narrower and smaller leaves glabrous above and with the hairs beneath having 6–7 rays and in the much larger and looser inflorescence. The inflorescence of *D. Henryi* is borne on short branchlets with undeveloped leaves springing from the end of shoots with mature leaves, rarely axillary; this would tend to show that the foliage is persistent and that the flowers appear very early in spring, but the whole appearance of foliage and inflorescence suggests more a case of abnormal autumnal flowering.

19*b*. **Deutzia aspera** Rehder, n. sp.

Frutex ramis robustis erectis; ramuli hornotini annotinique verrucis in apice pilos stellatos gerentibus dense obsiti ideoque asperi; gemmae perulis lanceolatis acuminatis parce stellato-pilosis v. exterioribus fere glabris. Folia decidua, ovato-oblonga v. elliptico-ovata, acuminata, basi late cuneata, rarius rotundata, argute serrulata, 3–5 cm. longa et 1.5–2 cm. lata, supra obscure viridia, venis venulisque impressis et pilis sparsis 4–6-radiatis conspersa, subtus viridia, sparsissime pilis 8–10-radiatis et papillis crebris praedita, nervis utrinsecus 5–6 subtus elevatis; petioli circiter 5 mm. longi, stellato-pilosi. Inflorescentia corymbosa, convexa, multiflora, dense verrucosa ut ramuli, in apice ramulorum elongatorum sessilis; flores desunt. Capsula pedicello 5–8 mm. longo circa medium bracteas linearilanceolatas gerenti insidens, subglobosa, pilis stellatis minutis obtecta, circiter 5 mm. diam., calyce stylisque persistentibus coronata; calycis dentes lanceolatae, acuminatae, 2.5 mm. longae; styli plerumque 4, rarius 3, circiter 3 mm. longi.

Yunnan: south of Red River from Manmei, alt. 2000 m., *A. Henry* (No. 9475, in Herb. Arnold Arboretum).

Most nearly related to *D. discolor* Hemsley, but easily distinguished from that species and its allies by the leaves being only sparingly furnished with stellate hairs beneath and therefore green, and by the rough branchlets. In its sparingly pubescent leaves it resembles *D. purpurascens* (Franchet) Rehder, which differs in its stellate hairs having only 5 to 7 rays.

22 *b*. **Deutzia calycosa** Rehder, n. sp.

Frutex erectus ramis satis robustis; ramuli hornotini initio sparse stellato-pilosi, mox glabrescentes, purpureo-brunnei, annotini epidermate lamellis tenuibus decorticante; gemmae perulis ovato-lanceolatis acuminatis stellato-pilosis. Folia decidua, ovato-oblonga v. ovato-lanceolata, acuminata, basi rotundata v. late cuneata, argute serrulata, 4–7 cm. longa et 1.2–2.5 cm. lata, v. interdum 10:4, supra obscure viridia, satis dense pilis 4–6-radiatis plurimis radio centrali instructis conspersa, subtus cinereo-viridia v. cinerascentia ob pilos 6–10-radiatos radio centrali elongato instructos molliter pubescentia, nervis utrinsecus 5–6 supra impressis subtus elevatis; petioli 3–5 mm. longi, laxe stellato-pilosi. Inflorescentia cormybosa, convexa et fere paniculiformis, multiflora, sparse stellato-pilosa, in apice ramulorum sessilis; pedicelli plerumque graciles, ad 1.5 mm. longi, sursum densius stellato-pilosi; calyx extus dense pube manifeste heteromorpha vestitus, dentibus lineari-lanceolatis 5–7 mm. longis tubum duplo superantibus purpurascen-

tibus; petala ovali-oblonga, in aestivatione valvata, 10–15 mm. longa, alba extus purpurascentia v. lilacina, extus stellato-pilosa; stamina petalis dimidio breviora, filamentis late alatis, exterioribus apice bidentatis dentibus obtusis antheram breviter stipitatam non superantibus, interioribus paullo brevioribus linearioblongis antheram breviter stipitatam infra apicem affixam gerentibus et ea paullo brevioribus v. interdum antheram circa medium affixam gerentibus et eam superantibus; styli 3–4, stamina subaequantes, 6–8 mm. longi. Capsula matura desideratur.

Yunnan: Mt. "Pi-ion-se," above Ta-pin-tze, near Ta-li, June 11, 1883, *J. M. Delavay*; Fang-yang-chang, alt. 3000 m., June 7, 1888, *J. M. Delavay* (No. 3543); woods above Che-tong, above Ta-pin-tze, May 18, 1886, *J. M. Delavay* (all in Herb. Mus. Paris).

Most nearly related to *D. longifolia* Franchet, which is easily distinguished by the close whitish tomentum of the under side of the narrower leaves, the usually close whitish tomentum of the calyx, and the shorter calyx-lobes. In the pubescence of the under side of the leaves it resembles *D. glomeruliflora* Franchet, but in that species the hairs of the under side have only 4 to 5 rays, the leaves are smaller and narrower and the flowers white and the calyx-lobes shorter. By Franchet the specimens quoted above had been referred to his *D. longifolia*, while I had taken the specimen from Fang-yang-chang, of which I had received some fragments from Paris as typical *D. longifolia*, for *D. glomeruliflora*.

31*b*. **Deutzia sessilifolia** Pampanini in *Nuov. Giorn. Bot. Ital.* XVIII. 227 (1911). Hupeh: "Monte Si-ho," July 1909 *C. Silvestri*, (Nos. 3001, 3001ª ex Pampanini). This species, of which I have seen no specimen, seems most closely related to *D. glabrata* Komarov, but it is easily distinguished by the sessile or connate leaves.

With the species enumerated and described above the total number of species of the genus *Deutzia* occurring in China reaches 41. Besides these 6 others occur in eastern Asia and in the Himalayas, which are all mentioned in my Synopsis except *D. uniflora* Shirai (in *Tokyo Bot. Mag.* XII. 110, t. 5 (1898)) which seems most nearly related to *D. grandiflora* Bunge, but differs in its one-flowered lateral inflorescence with only small or without any leaves at the base; by the latter character it approaches *D. coreana* Léveillé, but that species is easily distinguished by the ovoid calyx-tube with short triangular lobes, the very short pedicels not exceeding the bud-scales and by the hairs of the lower surface of the leaves having generally 5 rays.

One more species forming the section *Neodeutzia* occurs in Mexico; this is *D. mexicana* Hemsley including *D. mexicana*, var. *Pringlei* Schneider originally proposed as a distinct species by the same author. The whole genus, therefore, contains at present 48 species.

HYDRANGEA L.[1]

Determined by Alfred Rehder.

Hydrangea xanthoneura, var. **Wilsonii** Rehder. See p. 27.

The paragraph under *H. xanthoneura*, var. *glabrescens* Rehder containing the Nos. 1183, 1327, 1347, 2398 and 10235 has been misplaced; it belongs under *H. xanthoneura*, var. *Wilsonii*, and should constitute the fourth paragraph under this variety.

[1] See also p. 25–41.

Hydrangea Rosthornii Diels. See p. 33.

Hydrangea Maximowiczii Léveillé in *Bull. Acad. Intern. Geog. Bot.* XII. 114 (1903).

Kwei-chau: "environs de Gan-pin, aux Grandes rocailles," August 11, 1897, *L. Martin* (*E. Bodinier*, No. 1654, in Herb. Mus. Paris).

Last summer I had the opportunity of seeing in Paris the type number of Léveillé's *H. Maximowiczii* and found that it can not be separated specifically from *H. Rosthornii*. This extends the range of the species into Kwei-chau.

To my Synopsis of the Chinese species (p. 34–41) the following species must now be added:

12*b*. **Hydrangea heteromalla** D. Don, *Prodr. Fl. Nepal.* 211 (1824). — Schneider, *Ill. Handb. Laubholzk.* I. 389, fig. 247 m, 270 f (1906).

Hydrangea vestita Wallich, *Tent. Fl. Nepal.* t. 49 (excl. fig. 5–8) (1826). — Clarke in Hooker f., *Fl. Brit. Ind.* II. 405 (1878).

Hydrangea pubescens Decaisne in *Fl. des Serres*, IV. t. 378–379 (non Maximowicz) (1848).

Hydrangea heteromalla, var. **mollis** Rehder, n. var.

A typo praecipue recedit ramulis junioribus, petiolis, inflorescentia dense et breviter albo-villosis, foliis supra sparse minuteque pubescentibus, subtus pube molliore et densiore obtectis, denticulato-serrulatis, vix fimbriato-denticulatis.

Yunnan: at the foot of Tsang-shan, above Ta-li, alt. 2500 m., *J. M. Delavay* (No. 1148, fruiting specimen); same locality, June 26, 1886, *J. M. Delavay* (in Herb. Mus. Paris).

The discovery of a variety of *H. heteromalla* in Yunnan adds another species of Hydrangea to the Chinese flora and brings their number, according to the enumeration in my Synopsis (p. 34–41) up to 29, if *H. Kamienskii* and *H. Arbostiana* of Léveillé are included.

PILOSTEGIA Hook. f. & Thoms.

Determined by Alfred Rehder.

Pilostegia viburnoides Hooker f. & Thomson in *Jour. Linn. Soc.* II. 76, t. 2 (1858). — Maximowicz in *Mém. Acad. Sci. St. Pétersbourg*, sér. 7, X. No. XVI. 18 (1867). — Clarke in Hooker f., *Fl. Brit. Ind.* II. 405 (1878). — Hemsley in *Jour. Linn. Soc.* XXIII. 275 (1887). — Diels in *Bot. Jahrb.* XXIX. 376 (1900).

Western Szech'uan: Ya-chou Fu, alt. 600–1000 m., August and November 1908 (No. 1385; climber 3–7 m., over trees and cliffs, flowers white); Kin-shan, July 1891, *A. von Rosthorn* (No. 11). Also Hupeh, Kiangsi, Kwang-tung, Formosa, Luchu Archipelago (ex Hemsley).

DECUMARIA L.

Determined by ALFRED REHDER.

Decumaria sinensis Oliver in *Hooker's Icon.* XVIII. t. 1741 (1888). — Diels in *Bot. Jahrb.* XXIX. 377 (1900).

Western Hupeh: north and south of Ichang, cliffs, etc., alt. 1000–1200 m., May and November 1907 (No. **473** in part; climber 1–3m., flowers white with unpleasant odor); Hsing-shan Hsien, alt. 1300 m., June 1910 (No. **473** in part); South Wushan, May 1900 (Veitch Exped. No. 337); without locality, *A. Henry* (No. 5219[a], 5219[b]).

RIBES L.[1]

Determined by ALFRED REHDER.

The following enumeration contains the specimens collected during 1910; all of them can be identified with those of the earlier collection determined by E. Janczewski.

Ribes himalayense Decaisne, *γ* **glandulosum** Janczewski. See p. 44.

Western Szech'uan: Tachien-lu, woodlands, alt. 2700–3000 m., October 1910 (No. **4166**; bush 2–3 m., fruits orange); Mupin, alt. 2700–3000 m., October 1910 (No. **4226**; bush 2–3 m., fruits black).

Ribes himalayense, *α* **urceolatum** Janczewski. See p. 44.

Western Hupeh: Fang Hsien, woodlands, alt. 2300–2600 m., September 1910 (No. **4414**; bush 2–3 m., fruits black).

Ribes Meyeri Maximowicz, *α* **tanguticum** Janczewski. See p. 44.

Western Szech'uan: Tachien-lu: upland thickets, alt. 3300–4000 m., October 1910 (No. **4126**; bush 3–4 m., fruits black).

Ribes moupinense Franchet, *α* **laxiflorum** Janczewski. See p. 44.

Western Szech'uan: Mupin, thickets, alt. 2300–2800 m., October 1910 (No. **4212**; bush 2–3 m., fruits black); Lungan Fu, Tu-ti-liang Mts., alt. 2600–2800 m., August 1910 (No. **4501**; bush 2 m., fruits black); Sungpan, thickets, alt. 3000–3300 m., August 1910 (No. **4502**; bush 2 m., fruits black).

Ribes Vilmorinii Janczewski. See p. 45.

Western Szech'uan: Lungan Fu, Tu-ti-liang Mts., thickets, alt. 2300–2700 m., August 1910 (No. **4503**; bush 1.30–2 m., fruits black).

[1] See also p. 44.

Ribes humile Janczewski. See p. 45.

Western Szech'uan: uplands around Sungpan, alt. 3700–4300 m., August 1910 (No. **4504**; bush 1–1.50 m., fruits black).

I refer this black-fruited specimen not without hesitation to *R. humile*; in the type-specimen the fruits are described as orange on the label, but the specimen was collected in June and the fruits are apparently immature. In size, shape, serration and the perfect glabrousness of the leaves and in the usually solitary very short-stalked fruits No. 4504 agrees exactly with the type specimen of *R. humile*. Possibly *R. humile* is only a variety of *R. Vilmorinii*.

Ribes tenue Janczewski. See p. 45.

Western Szech'uan: Pan-lan-shan, west of Kuan Hsien, woodlands, alt. 2700–3000 m., August 1910 (No. **4033**; bush 2–2.5 m., fruits red).

Ribes luridum Hooker f. & Thomson. See p. 46.

Kiangsi: Kuling, rocks, not common, alt. 1300 m., August 1, 1907 (No. **1689**; bush 1.30 m).

Ribes Maximowiczii Batalin. See p. 46.

Western Szech'uan: Mupin, woodlands, alt. 2700–3000 m., October 1910 (No. **4229**; bush 2–3 m., fruits orange, very glandular); Fang Hsien, woodlands, alt. 2000–2300 m., September 1910 (No. **4413**; bush 2–3 m., fruits red).

ROSACEAE.[1]

COTONEASTER Med.

Determined by ALFRED REHDER and E. H. WILSON.

Sect 1. ORTHOPETALUM Koehne.

Cotoneaster disticha Lange in *Bot. Tidsskr.* XIII. 19 (1882). — Schneider, *Ill. Handb. Laubholzk.* I. 744, fig. 418 c–f, 419 a–b (1906).

Cotoneaster rotundifolia Baker in *Refug. Bot.* I. t. 54 (non Wallich) (1869). — Hemsley in *Bot. Mag.* CXXXI. t. 8010 (pro parte, ram. fructiferus tantum) (1905).

The type of this species has not been reported from China.

Cotoneaster disticha, var. **tongolensis** Schneider, *Ill. Handb. Laubholzk.* I. 745, fig. 419 d (1906).

Western Szech'uan; uplands around Tachien-lu, alt. 2600–3000 m., June 1908 (No. **2186**; decumbent bush, 1 m. tall).

Our specimen is from the same region as the one described by Schneider, and agrees well with his description, but is rather less hairy. Schneider expresses doubt whether his specimen should be regarded as a variety of *Cotoneaster disticha* or of *Cotoneaster Simonsii* Baker. Our specimen is certainly not referable to *Cotoneaster Simonsii* and shows a closer relation to *Cotoneaster disticha*.

Cotoneaster horizontalis Decaisne in *Fl. des Serres*, XXII. 168 (1877). — André in *Rev. Hort.* 1885, 136, fig. 25–26; 1889, 348, fig. 89–90. t. — Schneider, *Ill. Handb. Laubholzk.* I. 744, fig. 418 g–i, 419 e (1906).

Cotoneaster acuminata, var. *prostrata* Dippel, *Handb. Laubholzk.* III. 414 (non Hooker f.) (1893).

Cotoneaster Davidiana, Hort. ex *Kew Hand-list Trees and Shrubs* I. 213 (synon.) (1894).

Cotoneaster microphylla Diels in *Bot. Jahrb.* XXIX. 386 (pro parte, non Wallich) (1901).

Western Hupeh: Fang Hsien, alt. 2300 m., November 1907 (No. **227**; prostrate over rocks, fruit red); Western Szech'uan:

[1] See also p. 47.

Niu-tou-shan, west of Kuan Hsien, alt. 2600 m., June 1908, (No. **227**, in part; prostrate over rocks, flowers pinkish); Wei-kuan, Yu-li-pa *A. von Rosthorn* (No. 2549).

This species is common in western Szech'uan, but rare in Hupeh. It was probably from the district of Mupin in western Szech'uan that David sent the seeds from which the plants on which the species was based were raised.

Cotoneaster horizontalis Decaisne, var. **perpusilla** Schneider, *Ill. Handb. Laubholzk.* I. 745, fig. 419 e² (1906).

Cotoneaster microphylla Hemsley in *Jour. Linn. Soc.* XXIII. 261 (non Wallich) (1887). — Diels in *Bot. Jahrb.* XXIX. 386 (pro parte, non Wallich) (1901). — Pampanini in *Nuov. Giorn. Bot. Ital.* n. ser. XVII. 288 (non Wallich) (1910).

Western Hupeh: north and south of Ichang, bare, rocky ground, alt. 1300–2000 m., May and October 1907 (No. **496**; prostrate, fruit red); Chang-yang, alt. 1500 m., May 1900 (Veitch Exped. No. 564); without locality, *A. Henry* (No. 2858). Szech'uan: without locality, *A. von Rosthorn* (No. 303).

This small-leaved form of *C. horizontalis* is the common *Cotoneaster* of the moorlands in western Hupeh, being abundant in open rocky ground. It is probably merely a climatic form of the type, since the seedling plants under cultivation have the larger leaves of the type.

With its small leaves this variety bears some superficial resemblance to *C. microphylla* Wallich, and has been confused with this species by several botanists. The true *C. micropyhlla* which belongs to the sect. *Chaenopetalum* is readily distinguished by the spreading white petals of its flowers and the thick coriaceous leaves glaucous and usually whitish-tomentose on their lower surface.

Cotoneaster adpressa Bois in Vilmorin & Bois, *Frut. Vilmorin.* 116, fig. (1904); in Fedde, *Rep. Nov. Sp.* III. 226 (1906).

Cotoneaster horizontalis, var. *adpressa* Schneider, *Ill. Handb. Laubholzk.* I. 744, figs. 418 k–m, 419 e′ (1906).

Western Szech'uan: Tachien-lu, rocky places in alpine regions, alt. 2800–3230 m., June and September 1908 (No. **2187**; fruits bright red); Tachien-lu, uplands, alt. 2800–3500 m., October 1910, (No. **4136**; prostrate over rocks, fruit red).

Cotoneaster adpressa is undoubtedly closely related to *C. horizontalis* Decaisne, but seems to differ sufficiently to be considered specifically distinct. The chief differences are the nearly glabrous thinner leaves usually somewhat wavy on the margin, the larger subglobose fruits ripening several weeks earlier than those of *C. horizontalis*, and the habit, the creeping and often rooting stems being irregularly branched with often tortuous or flagellate branchlets forming a dense carpet closely appressed to the ground, while in *C. horizontalis* the stems are horizontally spreading or procumbent with the straight spreading branchlets regularly distichous.

Cotoneaster apiculata Rehder & Wilson, n. sp.

Frutex 1.5–2 m. altus, ramis robustis divaricatis; ramuli juniores flavo-cinereo-strigillosi, annotini sparse pubescentes, vetustiores cinereo-purpurei; gemmae flavo-cinereo-pubescentes. Folia decidua, orbicularia v. orbiculari-ovata, rarius late obovata, apiculata, rarissime emarginata, basi late cuneata v. rotundata, 4–12 (plerumque 6–9) mm. longa et 4–9 mm. lata, supra laete viridia, glabra, nitidula, subtus vix pallidiora, initio parce praesertim ad costam venasque strigoso-pilosa, demum fere glabra, utrinque nervis circiter 2 ut costa supra impressis subtus leviter elevatis; petioli 1–2 mm. longi, glabri, purpurescentes; stipulae membranaceae, lineari-lanceolatae, 3 mm. longae. Flores ignoti. Fructus solitarius, fere sessilis, erectus, globosus, 7–8 mm. diam., coccineus; pyrenae 3 (semper?), 5 mm. longae, triangulari-obovatae, dorso medio sulcatae, ventre nitentes carinatae, styli rudimentum prope basin hypostylii gerentes, hypostylio circiter quartam partem pyrenae occupante glabro nitido.

Western Szech'uan: Pan-lan-shan, west of Kuan Hsien, upland thickets, alt. 3000–3300 m., October 1910 (No. 4311).

Allied to *Cotoneaster disticha* Lange, which is readily distinguished by its ciliate leaves, dull and hairy above, longer peduncles, ovoid fruit, and by the very regular distichous ramification of the stems. Our specimens bear ripe fruit, but are so distinct in appearance that we do not hesitate in describing it as a new species. The plant is in cultivation and when it flowers there may be other differences of note.

Cotoneaster nitens Rehder & Wilson, n. sp.

Frutex 0.5–1.25 m. altus dense ramosus ramis divaricatis dependentibus; ramuli juniores pilis cinereo-flavescentibus strigillosis obsiti, basin versus glabrescentes, annotini glabri, sub peridermate cinereo secedente fusci; gemmae acutiusculae, pubescentes. Folia decidua, late ovalia v. orbiculari-ovata, obtusa, rarius acutiuscula v. emarginata v. mucronata, basi rotundata, v. rarius late cuneata, 7–16, plerumque 10–12 mm. longa et 7–14, plerumque 9–11 mm. lata, laete viridia, concoloria, supra nitentia, glabra, subtus initio sparse praesertim ad costam accumbenti-pilosa, demum glabra v. fere glabra, utrinsecus nervis 3–4 ut costa supra leviter impressis subtus obsoletis; petioli sparse pilosuli v. glabri, 2–3 mm. longi; stipulae subulatae, membranaceae, circiter 2 mm. longae. Flores ignoti. Fructus solitarii v. bini, penduli, pedicellis glabris 2–4 mm. longis ramulos brevissimos laterales terminantibus insidentes, nigro-rubri, nitentes, glabri, subglobosi v. late ovoidei, 7–8 mm. longi, 5–6 mm. diam., apice truncato, calyce aperto; pyrenae 2, ovoideae, 5 mm. longae, 3.5 mm. latae, ventre

stylum paullo infra apicem gerentes, dorso irregulariter leviter sulcatae, fuscescentes, hypostylio tertiam partem v. ultra dorsi occupante, nitido, glabro, flavescenti-brunneo.

Western Szech'uan: Min Valley, near Sungpan Ting, alt. 2300–3000 m., September 1910 (No. **4021**).

This species is characterized by its broadly oval to suborbicular leaves, shining green and glabrous above and nearly so beneath, and by its nearly black fruits. It is most closely allied to *C. divaricata* Rehder & Wilson, which has bright-red differently shaped and nearly sessile fruits, different foliage and habit.

Cotoneaster divaricata Rehder & Wilson, n. sp.

Frutex 1–2 m. altus, laxe ramosus; ramuli graciles, reflexi, hornotini cinereo-strigillosi, annotini glabrescentes, vetustiores fusco-rubri, lamellis cinereis opacis decorticantes; gemmae acutae, strigilloso-pubescentes. Folia decidua, ovalia, interdum late ovalia, rarius obovata, acuta v. obtusa, rarius rotundata, mucronata, basi late cuneata, 8–20 mm. longa, 5–8 mm. lata, utrinque initio parce strigilloso-pilosa, supra mox glabra, laete viridia et nitida, subtus pallidiora demum ad nervos tantum sparse pilosa, utrinsecus nervis 3–4 ut costa supra impressis subtus elevatis; petioli 1–2 mm. longi, strigilloso-pubescentes; stipulae membranaceae, lineari-lanceolatae, rubescentes, 3–4 mm. longae. Racemi plerumque 3-flori, rarius uniflori, ramulos laterales brevissimos pauci-foliatos terminantes, bracteis bracteolisque membranaceis lanceolatis deciduis 2–3 mm. longis instituti; pedicelli 1–2 mm. longi, ut calyx parce flavido-strigillosi; calycis dentes triangulares acuti, 1.5–2 mm. longi et 1.5 mm. lati, margine pilosi; petala late obovata, apice rotundata, basi breviter unguiculata, 3–4 mm. longa, 2–3 mm. lata, concava, rosea, caduca; stamina 12–15, petalis breviora, glabra, persistentia; carpidia 2, apice pilosa. Fructus ruber, ovoideus, 7–9 mm. longus, 5–7 mm. diam., sepalis plus minus erectis persistentibus coronatus et saepe infra sepala leviter constrictus; pyrenae 2, ovoideae, 4–5 mm. longae et 3–4 mm. latae, ventre planae laeves, nitidae, brunneae, styli rudimentum ad apicem gerentes, dorso convexo obsolete rugulosae, irregulariter leviterque pluri-sulcatae, hypostylio quartam partem dorsi occupante sparse villosulo.

Western Hupeh: Hsing-shan Hsien, thickets, alt. 1650–2000 m., June and September 1907 (No. **232**, type); south Wushan, alt. 1650–2000 m., September 1907 (No. **153**[a]); Chien-si Hsien, June 1900 (Veitch Exped. No. 877). Western Szech'uan: near Tachien-lu, thickets, alt. 2000–2600 m., May 1908 (No. **2167**, bush 2 m. tall, flowers pinkish); without locality, *A. Henry* (No. 5701).

This species is most nearly related to *C. Simonsii* Baker, from which it is readily distinguished by its smaller leaves, constantly fewer flowered racemes, less acuminate sepals, and by its ovoid darker red fruits; in habit and general appearance the two species are very distinct. It seems also related to *C. mucronata* Franchet from Yunnan, which differs chiefly in the lax 2–4-flowered racemes and more densely hairy leaves. No. 2167 from Szech'uan has the leaves, particularly those of the shoots, somewhat larger than the type and often shortly acuminate.

Cotoneaster acutifolia Turczaninow in *Bull. Soc. Nat. Mosc.* V. 190 (1832). — Schneider, *Ill. Handb. Laubholzk.* I. 750, fig. 421 a (1906).

Cotoneaster acutifolia, var. *pekinensis* Koehne in *Deutsche Dendr.* 225 (1893).
Cotoneaster pekinensis Zabel in *Mitt. Deutsche Dendr. Ges.* VII. 37 (1898).

Originally described from Chinese Mongolia, this plant was introduced from the mountains near Peking by Dr. Bretschneider into the Arnold Arboretum in 1883. The typical form is absent from central and western China. This species is not to be confounded with *C. acutifolia* Lindley which is *C. lucida* Schlechtendal, a species from the Altai mountains not yet reported from China.

Cotoneaster acutifolia, var. **villosula** Rehder & Wilson, n. var.

Cotoneaster acuminata Pritzel in *Bot. Jahrb.* XXIX. 385 (pro parte, non Lindley) (1900).

Frutex 2–4-metralis ramis divaricatis; ramuli hornotini flavido-villoso-strigillosi, annotini glabrescentes v. glabri, fusco-purpurei; gemmae tomento flavido-cinereo obtectae. Folia decidua, ovata v. oblongo-ovata, acuta v. acuminata, basi rotundata, rarius late cuneata, 3–6 cm. longa et 1.5–4 cm. lata, supra obscure viridia, initio sparse villoso-pilosa, demum glabra v. fere glabra, subtus laxe v. interdum densius subaccumbenti-villosa praesertim ad venas, utrinsecus nervis 4–6 ut costa supra leviter impressis subtus elevatis; petioli villosi, 3–5 mm. longi. Racemi laxi, 3–5-flori, bracteis bracteolisque subulatis ciliatis 3–4 mm. longis deciduis instructi, pedicelli cum pedunculo circiter 1 cm. longi, subaccumbenti-villosi; calycis tubus turbinatus, villoso-tomentosus, 4–5 mm. diam., dentes late triangulares, mucronulati, 1.5 mm. longi et 2 mm. lati, purpurascentes, dorso fere glabra margine dense villosuli; petala orbiculari-obovata, concava, erecta, alba, roseo suffusa, 4–4.5 mm. longa, 3 mm. lata, breviter unguiculata; stamina 20, sepalis longiora; carpidia 2, rarius 3, apice villosa, stylis quam stamina brevioribus. Fructus pyriformis, 8–10 mm. longus, apice depresso villosulus, niger; pyrenae 2, rarius 3, trigono-obovoideae, 5–6 mm. longae et 4–4.5 latae, ventre stylum tertiam partem infra apicem gerentes, nitidae, dorso irregulariter leviter sulcatae et rugulosae, hypostylio tertiam v. vix tertiam partem dorsi occupante nitido glabro v. sparse villosulo.

Western Hupeh: Hsing-shan Hsien, thickets, alt. 1300–1600 m., June and October 1907 (No. **327**, type); south Wushan, thickets, alt. 1300–1600 m., October 1907 (No. **217**, fruit); north and south of Ichang, thickets and margins of woods, alt. 1300–2000 m., June 1907 (No. **217**, flowers); Changyang Hsien, alt. 1300–1600 m., June 1907 (No. **156**, flowers); no locality, June and August 1900 (Veitch Exped. Nos. 669[a], 669[b], in part, and specimens from Hort. Veitch under seed Nos. 1160[a], 595). Western Szech'uan: Ta-p'ao-shan, north-east of Tachien-lu, thickets, alt. 2300–3000 m., July 1908 (No. **319** in part); Nanch'uan, *A. von Rosthorn* (No. 1805). Shensi: north-west Han-chung Hsien, 1910, *W. Purdom* (No. 367); Tai-pei-shan, 1910, *W. Purdom* (no number).

This variety is easily distinguished from the type, which has smaller less acuminate glabrescent leaves, less densely pubescent calyx and glabrous fruits.

Cotoneaster acutifolia, var. **laetevirens** Rehder & Wilson, n. var.

Cotoneaster vulgaris Pritzel in *Bot. Jahrb.* XXIX. 385 (pro parte, non Lindley) (1900).

Frutex 2–3-metralis ramis divaricatis gracilibus curvatis; ramuli hornotini flavido-villoso-strigillosi, annotini glabri, fusco-rubri. Folia decidua, ovata v. rhombico-ovata, acuta v. breviter acuminata, rarius obtusiuscula, basi late cuneata, rarius rotundata, 2–3.5 cm. longa et 1–2.5 cm. lata, supra laete viridia, sparse villoso-pilosa, margine ciliolata, subtus subaccumbenti-villosa; petioli 3–5 mm. longi, accumbenti-villosi; stipulae subulatae 3–4 mm. longae, pubescentes. Racemi plerumque 3-flori; pedicelli cum pedunculo 5–8 mm. longi, accumbenti-villosi; calycis tubus turbinatus, 4–5 mm. diam., sparse villosus, dentes late triangulari-ovati, mucronulati, 1.5–2 mm. longi, dorso villosi; petala obovata, 4–5 mm. longa, erecta v. erecto-patentia, breviter unguiculata, alba, roseo suffusa; stamina 20, sepalis aequilonga; carpidia 2–3, apice dense villosa, stylis staminibus aequilongis. Fructus desiderantur.

Western Szech'uan: Ta-p'ao-shan, north-east of Tachien-lu, alt. 3300 m., July 1908 (No. **2177**, type): Nan-ch'uan, *A. von Rosthorn* (No. 1806).

Differs from the type in size and texture of leaves and in the character of the pubescence. Possibly it should rank as a distinct species, but we have no fruits. Rosthorn's specimen has longer pedicels than the type of this variety.

Cotoneaster ambigua Rehder & Wilson, n. sp.

Frutex 1.5–2 m. altus ramis divaricatis curvatis; ramuli hornotini

flavido-villoso-strigillosi, annotini glabri v. fere glabri, fusco-rubri; gemmae tomento cinereo-flavido subaccumbenti-villoso obtectae. Folia decidua, elliptico-ovata v. rhombico-ovata, rarius elliptico-obovata, ad ovato-lanceolata, acuminata, basi late cuneata, 3–5 cm. longa et 1–2.5 cm. lata, supra initio sparse subaccumbenti-pilosa, mox glabrescentia v. glabra, subtus laxe ad venas densius subaccumbenti-villosa, utrinsecus nervis 5–7 supra impressis subtus elevatis; petioli pubescentes, 2–3 mm. longi; stipulae subulatae, 4–6 mm. longae. Corymbus 5–10-florus, ramulos laterales breves foliosos terminans, bracteis bracteolisque subulatis caducis 3–4 mm. longis sparse villosis; pedicelli cum pedunculo circiter 1 cm., rarius 1.5 cm. longi, sparsissime pilosi; calyx parce villosus v. fere glaber; sepala late triangularia, 1 mm. longa et 1–1.5 mm. lata, mucronulata, intus ad marginem villosula; petala orbiculari-obovata, 3–4 mm. longa et circiter 3 mm. lata, concava, erecta, saepe leviter erosa, brevissime unguiculata; stamina 20, sepalis longiora; carpidia 2–5, apice pilosa. Fructus niger, nitidulus, ovoideus, 8–9 mm. longus, apice tantum villosulus; pyrenae 2–3, rarius 4, rarissime 5, triangulari-obovatae, 5–6 mm. longae et 3–5 mm. latae, ventre brunneae, nitidae, stylum quartam partem infra apicem gerentes, dorso leviter irregulariter foveolato-sulcatae, hypostylio tertiam partem dorsi occupante brunneo sparse villosulo.

Western Szech'uan: Pan-lan-shan, west of Kuan Hsien, alt. 2300–3000 m., June 1908 (No. **2179**, type); west of Tachien-lu, alt. 3300 m., October 1908 (No. **1270**); Tachien-lu, thickets, alt. 2600–3000 m., June 1908 (No. **2178**); around Tachien-lu, alt. 2600–3000 m., 1903 (Veitch Exped., plants in Hort. Veitch under Nos. 1507, 1723).

Allied to *Cotoneaster acutifolia* Turczaninow, which is readily distinguished by its generally ovate much less pubescent leaves and more densely pubescent calyx. From *Cotoneaster moupinensis* Franchet this new species is easily recognized by its smaller foliage, which hardly ever shows any tendency to become rugose, its smaller inflorescence and flowers, and by its globose fruit.

It must be confessed, however, that there is a great similarity between all these black-fruited Cotoneasters from China. With *Cotoneaster acutifolia* Turczaninow at one end of the chain and *Cotoneaster moupinensis* Franchet at the other it is almost possible, with the material before us, to connect the whole series. The living plants look quite different, and since all the species and varieties named above are in cultivation, it may be possible later to determine their affinities more accurately.

Nos. 1270 and 2178 differ from the type in their thicker, broader leaves. No. 2178 has a more numerous-flowered corymb, broader sepals, showing some approach to *Cotoneaster moupinensis* Franchet.

Cotoneaster reticulata Rehder & Wilson, n. sp.

Frutex 2.5–4 m. altus ramis validiusculis; ramuli hornotini flavido-

villoso-strigillosi, demum glabrescentes, annotini fusci, glabri, vetustiores cinereo-fusci; gemmae dense flavido-subaccumbenti-villosae. Folia subcoriacea, decidua, elliptico-ovata, rarius rhombico-ovata, acuminata v. acuta, 2.5–3.5 cm. longa et 1–1.6 cm. lata, supra glabra, lucide viridia, venularum reticulo impresso, subtus tomento flavido villoso obtecta, utrinsecus venis 4–5 supra valde impressis subtus manifeste elevatis; petioli 3–4 mm. longi, pubescentes, demum plerumque glabrescentes; stipulae subulatae, pubescentes, circiter 2 mm. longi. Flores ignoti. Fructus 3–6 in racemis glabris, pedicellis cum pedunculo 0.5–1 cm. longis, globosi, 5–7 mm. diam., purpureo-nigri, glabri; pyrenae 5, trigono-oblongo-obovoideae, 3–4 mm. longae et circiter 2 mm. diam., ventre carinatae, stylum plus quam tertiam partem infra apicem gerentes, dorso irregulariter obsolete sulcatae, hypostylio tertiam partem dorsi occupante sparse villosulo.

Western Szech'uan: west and near Wên-ch'uan Hsien, alt. 2600–3000 m., October 1910 (No. **4191**, type).

This species is apparently closely related to *C. obscura* Rehder & Wilson, but differs from it in its subcoriaceous leaves rugose above and reticulate beneath, glabrous pedicels, and in the 5 narrow stones of the fruit.

Cotoneaster obscura Rehder & Wilson, n. sp.

Frutex 1–3-metralis, ramosissimus, divaricatus; ramuli hornotini flavido-strigillosi, basin versus interdum glabrescentes, annotini tarde glabrescentes, fusco-purpurei, vetustiores obscure fusci; gemmae flavido-villoso-strigillosae, 2–3 mm. longae. Folia decidua, elliptico-ovata, rarius rhombico-ovata, plerumque acuminata, rarius acuta, basi late cuneata, 2.5–4 cm. longa et 1.5–2 cm. lata, supra obscure viridia, initio pilis accumbentibus conspersa, demum glabra v. fere glabra, subtus tomento subaccumbente villoso flavido-cinereo obtecta, utrinsecus nervis 3–4 ut costa supra leviter impressis subtus elevatis; petioli 2–3 mm. longi, pubescentes; stipulae membranaceae, subulatae, 3–4 mm. longae. Flores ignoti. Fructus 3–5 in racemis ramulos breves laterales terminantibus, pedicellis cum pedunculo 3–5 mm. longis sparse villoso-strigillosis, ovoideo-pyriformes, 8–9 mm. longi et 7–8 mm. diam., fusco-rubri, apice applanato sparse villoso, sepalis conniventibus; pyrenae plerumque 3, rarius 2, oblongo-obovoideae, 5 mm. longae, 3 mm. diam., ventre stylum tertiam partem infra apicem gerentes, dorso pallidae, interdum leviter sulcatae, hypostylio nitido flavido-brunneo tertiam partem dorsi occupante parce villoso v. glabro.

Western Szech'uan: Pan-lan-shan, west of Kuan Hsien, thickets, alt. 2600 m., October 1910 (No. **4306**, type); Tachien-lu, upland thick-

ets, alt. 3000–3600 m., October 1910 (No. **4090**); without locality, 1904 (Veitch Exped. ex Hort. Veitch. No. 1718).

Allied to *Cotoneaster acuminata* Lindley, which differs in the leaves being only sparingly appressed-pilose beneath, and in the larger, bright-red and turbinate fruits open at the apex. *Cotoneaster bullata* Bois differs in the color and shape of its fruits, and in its longer leaves of different texture.

Cotoneaster obscura, var. **cornifolia** Rehder & Wilson, n. var.

Frutex 3-metralis ramis validiusculis; ramuli hornotini flavido-strigillosi, basin versus glabrescentes, flavido-fusci, vetustiores cinereo-fusci v. cinerascentes. Folia elliptico-ovata v. fere rhombico-ovata, rarius elliptico-oblonga, interdum elliptico-obovata, plerumque manifeste acuminata mucronata, basi late cuneata, 4–7 cm. longa et 2–3.5 cm. lata, supra obscure viridia initio sparse subaccumbenti-villosa, demum glabrescentia, subtus paullo pallidiora, tomento villoso flavescenti praesertim ad venas laxe obtecta, nervis utrinsecus 5–6 supra impressis subtus elevatis; petioli 3–5 mm. longi, laxe villosi. Fructus 3–4 in racemis laxis ramulos breves laterales terminantibus, pedicellis cum petiolo 1–1.5 cm. longis sparsissime pilosis, turbinati, 8–10 mm. longi, atrorubri, glabri; pyrenae 5, triangulari-oblongo-obovoideae, 6 mm. longae, ventre carinatae, stylum tertiam partem infra apicem gerentes, dorso irregulariter leviter sulcatae, hypostylio tertiam partem dorsi occupante nitido flavo-brunneo glabro v. sparse villoso.

Western Szech'uan: Tu-ti-liang mts., Lungan Fu, alt. 2600 m., August 1910 (No. **4543**, type).

Distinguished from the type by its much larger leaves, more deeply impressed above and less densely pubescent beneath, and in its larger more decidedly turbinate fruit. It resembles somewhat *C. foveolata* Rehder & Wilson, but differs in its turbinate purplish-black fruits with five stones, and in its shorter, few-flowered racemes.

Cotoneaster foveolata Rehder & Wilson, n. sp.

Frutex 2–3-metralis ramis divaricatis; ramuli hornotini flavido-villoso-strigillosi, annotini glabri, cinereo-fusci v. flavido-cinerei v. fusci ut vestustiores; gemmae tomento subaccumbenti-villoso flavescente obtectae. Folia decidua, elliptica v. elliptico-ovata, v. elliptico-obovata, rarius ovato-oblonga, breviter acuminata v. acuta, 3.5–8, plerumque 5–6 cm. longa et 1.8–3.5, plerumque 2–3 cm. lata, supra obscure viridia, initio sparse accumbenti-pilosa, mox glabra, subtus sparse, ad venas densius subaccumbenti-villosa, demum plerumque glabra v. fere glabra, sed interdum pilis ad costam venasque persistentibus, margine dense ciliolata, nervis supra impressis subtus elevatis, venularum

reticulo supra leviter impresso v. obsoleto subtus obsoleto, parenchymate non v. vix bullato; petioli 2–4 mm. longi, sparse pilosi, demum glabrescentes v. glabri. Corymbus 3–7-florus, ramulos laterales terminans, pedicelli cum pedunculo 1–1.5 cm. longi, rarissime longiores, villoso-strigillosi, bracteis bracteolisque subulatis parce strigilloso-villosis; calyx cum dentibus dense v. interdum laxius subaccumbenti-setoso-villosus, dentes interdum dorso glabrescentes; petala orbiculari-obovata, 4.5–5 mm. longa et 3.5–4 lata, breviter unguiculata, concava, erecta, alba roseo afflata; stamina fere 20, sepalis longiora; carpidia 2–5, apice dense villosa. Fructus subglobosus, 7–8 mm. diam., niger; pyrenae 2–5 plerumque 3–4, triangulari-obovoideae, 4–5 mm. longae et 3.5–4.5 latae, ventre carinatae, nitidae, stylum vix tertiam partem infra apicem gerentes, dorso irregulariter sulcatae et foveolatae, hypostylio tertiam v. vix tertiam partem dorsi occupante parce villoso v. glabro nitidulo.

Western Hupeh: Chang-lo Hsien, alt. 1600–2000 m., September 1907 (No. **147**, type); Fang Hsien, alt. 1600–2500 m., thickets, September 1907 (Nos. **271**, **273**, **319**); north and south of Ichang, alt. 1000–2000 m., June and September 1907 (Nos. **2175**, **156** as to fruit); Pao-kang Hsien, June 1900 (Veitch Exped. No. 1291); no locality, *A. Henry* (No. 6328).

Cotoneaster foveolata is closely related to *C. moupinensis* Franchet, which differs in the thicker more rugose leaves, the many-flowered inflorescence, glabrescent calyx, and in the narrower stones usually 5 or 4 in each fruit and with only a shallow furrow on the dorsal side.,

Cotoneaster moupinensis Franchet in *Nouv. Arch. Mus. Paris*, sér. 3, viii. 224 (*Pl. David.* ii. 42) ((1885). — Schneider, *Ill. Handb. Laubholzk.* I. 747 (1906).

Western Szech'uan: Mupin, thickets, alt. 1300–2000 m., June and September 1908 (No. **857**, in part; bush 1–2.5 m. tall, flowers white, fruit black); Wa-shan, thickets, alt. 2000–2300 m., June and September 1908 (No. **857**, in part; bush 2–5 m. tall, flowers pinkish, fruit black); west and near Wên-ch'uan Hsien, thickets, alt. 1600–2300 m., June 1908 (No. **2180**, in part; bush 2–3 m. tall).

The fruit, which has not yet been described, is black, globose, 7–10 mm. in diameter with the persistent incurved calyx-teeth leaving a small opening in the middle; stones 3–5, generally 4–5, narrowly triangular-obovoid, 4–5 mm. long, 2.5–3 mm. wide, dull yellowish and irregularly and slightly furrowed on the dorsal side, hypostyle small, lustrous brownish yellow, covering one third or less of the dorsal side.

This is the common Cotoneaster in the thickets and margins of woods throughout western Szech'uan. The flowers are slightly larger and the leaves less wrinkled than

those of *Cotoneaster bullata* and the fruits are jet black. Franchet does not give the color of the fruits in his original description of *Cotoneaster moupinensis*, but from fragments we have, kindly communicated from Paris, they appear to us as if they would be black when mature. Since the leaves and flowers of this black-fruited variety agree exactly with Franchet's original description, and, since this is the common plant of the region Franchet's type came from, we have referred his name to this plant and accepted Bois' name of *bullata* for the red-fruited form, which differs besides in the smaller flowers and decidedly more wrinkled leaves; it is, too, a comparatively rare plant, though scattered over a wide area in western Szech'uan.

Our specimens exhibit considerable variation both in foliage and in size of the corymb. No. 857, from Mupin, has rugose leaves, but this character varies considerably even on the same shoots.

Cotoneaster bullata Bois in Vilmorin & Bois, *Frut. Vilmorin.* 119, 2 fig. (1904); in Fedde, *Rep. Nov. Sp.*, III. 228, 2 fig. (1906).

Cotoneaster moupinensis Stapf in *Bot. Mag.* CXXXV, t. 8284 (pro parte, non Franchet) (1909).

Our specimens are all referable to the following variety.

Cotoneaster bullata, var. **macrophylla** Rehder & Wilson, n. var.

Frutex 2–5-metralis; ramuli hornotini cinereo-villoso-strigillosi, demum glabrescentes, annotini glabri, flavido-grisei v. fusco-grisei ut vetustiores. Folia decidua, obovato-elliptica v. elliptica, rarius elliptico-oblonga v. lanceolato-oblonga, acuminata, basi late cuneata v. rarius sensim attenuata, 5–15 cm. longa et 2.5–8 cm. lata, supra initio sparse adpresse pilosa, demum glabra, subtus sparse adpresse villosa, demum glabrescentia, plerumque ad venas venulasque tantum villosa v. pilosula, ea ramorum elongatorum subtus densius pubescentia, nervis utrinsecus 8–10 supra impressis subtus prominentibus, parenchymate saepe bullato et simul venularum reticulo subtus elevato; petioli circiter 2 mm. longi, sparse adpresse villosuli v. glabrescentes. Corymbus multiflorus, 5–8 cm. diam.; pedicelli breves, ut pedunculi fere glabri v. sparse adpresse pilosi; calycis tubus glaber v. fere glaber, 4 mm. diam., dentes obtusiusculi, dense ciliolati. Fructus coccineus, subglobosus v. turbinato-globosus, 7–9 mm. diam.; pyrenae 5, trigono-oblongo-obovoideae, 6 mm. longae et 3 mm. diam., ventre carinatae, stylum trientem infra apicem gerentes, dorso plus minus sulcatae, hypostylio vix trientem dorsi occupante villosulo pallide brunneo-flavido ut dorsum.

Western Szech'uan: Wa-shan, thickets, alt. 1900–2600 m., September 1908 (No. **873**, type; bush 3–5 m. tall, fruits brick red): Chinting-shan, alt. 1300–1600 m., May 1908 (No. **2180** in part, bush 2–3 m. tall, flowers pinkish); near Monkong Ting, thickets, alt. 2300 m.,

June 1908 (No. **2181**, bush 2 m. tall, flowers pinkish); Mt. Omei, alt. 2300–2800 m., October 1903 (Veitch Exped. No. 3515 a).

This variety resembles in its many-flowered corymbs *C. bullata*, f. *floribunda*, n. comb. (*C. moupinensis*, f. *floribunda* Stapf), which is easily distinguished by its much smaller leaves generally ovate or sometimes obovate and rounded at the base and more densely pubescent beneath, and by the pubescent calyx and the chestnut brown branches.

Cotoneaster Franchetii Bois in *Rev. Hort.*, 1902, 379, figs. 159, 160, 161, 164; 1907, 256, fig. 90. t.; in Vilmorin & Bois, *Frut. Vilmorin.* 117, 2 fig. (1904); in Fedde, *Rep. Nov. Sp.* iii. 228 (1906).

Western Szech'uan: Tachien-lu, thickets, alt. 2500–2900 m., September 1908 (No. **995**; bush 2–3 m. tall, fruit bright red); Niu-tou-shan, west of Kuan Hsien, alt. 2300 m., June 1908 (No. **2171**); west and near Wên-ch'uan Hsien, alt. 2000–2600 m., October 1910 (No. **4160**; bush 1.5–3 m. tall, fruit scarlet).

Our specimens differ from the cultivated type only in the bracts and bractlets of the inflorescence being rather short.[1]

[1] A closely related species is the following, of which a full description may be added here:

Cotoneaster amoena Wilson in *Gard. Chron.* ser. 3, LI. 2, fig. 1 (1912).

Frutex 1–1.5 m. altus, dense ramosus; ramuli hornotini subaccumbenti-villosi, annotini tarde glabrescentes, demum fusco-purpurei; gemmae tomento subaccumbenti-villoso cinereo-albido obtectae. Folia decidua, ovata v. elliptico-ovalia, acuta mucronulata, basi late cuneata, 10–22 mm. plerumque 15 mm. longa et 6–15 mm., plerumque 6–10 mm. lata, supra sparse pubescentia, subtus villoso-tomentosa, utrinsecus nervis 2–4 ut costa supra impressis subtus elevatis; petioli tomentosi, 2–5 mm. longi; stipulae membranaceae, subulatae, pubescentes, 4–5 mm. longae. Corymbus densus, 6–10-florus, ramulos laterales breves foliosos terminans, bracteis bracteolisque subulatis membranaceis caducis 3–5 mm. longis; calycis tubus tomento subaccumbenti-villoso albido obtectus, dentes anguste triangulari-ovati, sensim in aristam fuscescentem producti; petala rotundata, breviter unguiculata, erecta, 2–2.5 mm. longa lataque; stamina 20, sepalis breviora v. aequilonga; carpidia 2–3, apice villosa. Fructus globosus, 5–6 mm. diam., miniatus, subsessilis, apice villosulus; pyrenae 2–3, triangulari-obovoideae, 4–5 mm. longae, ventre carinatae, nitentes, stylum trientem infra apicem gerentes, dorso medio leviter sulcatae saepe etiam sulcis obsoletis lateralibus praeditae, hypostylio brunneo nitido trientem dorsi occupante.

Yunnan: This description is drawn up from specimens made from plants in Hort. Veitch. under No. 1889 raised from seeds collected southwest of Mengtze, alt. 1600–1700 m. (Veitch Exped.; type in Herb. Arnold Arboretum); mountains north of Mengtze, *A. Henry* (No. 11341).

Closely allied to *Cotoneaster Franchetii* Bois, which is distinguished by its lax spreading habit, larger cymes, longer peduncles and longer pedicels and by its broader, less acuminate sepals. The living plants show greater differences than the herbarium material would lead one to suspect. Henry's No. 10785 has longer leaves and glabrescent sepals and is evidently from a vigorous plant.

Cotoneaster Dielsiana Pritzel in *Bot. Jahrb.* XXIX. 385 (1900). — Schneider, *Ill. Handb. Laubholzk.* I. 749, figs. 418 a–b, 429 a (1906).

Cotoneaster applanata Duthie apud Veitch, *Hort. Veitchii*, 385 (1906).

Western Hupeh: Changyang Hsien, thickets, alt. 1300–2000 m., June and October, 1907 (No. **466**; bush 1.5–2 m. tall, flowers pinkish, fruit red); without locality, June and October 1900 (Veitch. Exped. No. 1127); plants from Hort. Veitch under Nos. 519, 1288).

Photographs of this species showing the habit will be found in *Horticulture* XI. 181 (1910), and under the name of *C. applanata* in James Veitch & Sons, Novelties for 1908-9, 17. No. 1288 of Hort. Veitch, differs from the type in having larger and broader leaves and larger fruits and may be distinguished as forma *major*.

Cotoneaster Dielsiana, var. **elegans** Rehder & Wilson, n. var.

A typo praecipue recedit foliis minoribus, saepe obtusiusculis v. obtusis, subpersistentibus quamquam tenuioribus, fructibus minoribus, miniatis pendulis. Frutex 1–2-metralis, erectus, ramis gracilibus, divaricatis arcuatis. Folia ovata v. ovalia, 1–2 cm. longa et 6–13 mm. lata, supra initio sparse villosula, demum glabrescentia, subnitentia, subtus cinereo-tomentosa. Fructus globosus, pendulus, corallinus, 5–6 mm. diam., pedicellis 1–2 mm. longis; pyrenae 2–5 triangulari-oblongo-obovoideae, 3.5–4.5 mm. longae et 2–3.5 mm. diam., ventre carinatae, nitidae, stylum trientum infra apicem gerentes, dorso pallidae, irregulariter foveolato-rugosae, hypostylio dorsi trientem v. ultra occupante.

Western Szech'uan: Tachien-lu, alt. 2600–3000 m., thickets, July and October 1908 (No. **1287**, type); Wa-shan, alt. 2300–2600 m., cliffs, June and September 1908 (No. 2170, bush 1–2 m. tall, flowers pink, fruit coral red).

This western plant shows marked difference from the type and in several respects approaches *Cotoneaster Franchetii* Bois. It also has affinity with *Cotoneaster Zabelii* Schneider. Its thinner yet more persistent leaves, smaller pendulous fruit, brick or orange-red, distinguish this variety from the typical form.

Cotoneaster Zabelii Schneider, *Ill. Handb. Laubholzk.* I 748, fig. 420 f–h (1906); in Fedde, *Rep. Nov. Sp.* iii. 220 (1906).

Western Hupeh: Chang-lo Hsien, thickets, alt. 1300–2000 m., May and October, 1907 (Nos. **331**, in part; bush 1.5–2 m. tall, flowers pink, fruit red; No. **2190**; bush 2.5 m. tall, fruit red): north and south of Ichang, alt. 1300–2000 m., common, June 1907 (No. **2172**; bush 1.5–2 m. tall, flowers pinkish); Fang Hsien, thickets, alt. 2000–2300 m., June 1907 (No. **2173**; bush 1.5–2 m. tall); Patung Hsien,

thickets, alt. 1600 m., June 1907 (No. **2174**; bush 2 m. tall, flowers pink); Hsing-shan Hsien, thickets, alt. 2000 m., June 1910 (No. **4542**; bush 1–2 m. tall, flowers pink); without locality, June 1900 (Veitch Exped. No. 1167 and seed number 623); without locality, *A. Henry* (Nos. 5463, 7918). Shensi: north-west of Han-chung Hsien, May 1910, *W. Purdom* (No. 360); Tai-pei-shan, 1910, *W. Purdom* (no number).

This is the common *Cotoneaster* of the thickets in western Hupeh. The oval-elliptic leaves are usually rounded and emarginate or mucronulate but occasionally acute; often all forms are found on the same shoot. The Hupeh specimens appear to have rather shorter, more prominently veined leaves than those from Shensi, the type locality. Purdom's specimen from the Tai-pei-shan has the corymbs larger and more numerous flowered and larger leaves than any of the other specimens we have seen. In young plants the leaves are mucronulate and inclined to be acute.

Cotoneaster gracilis Rehder & Wilson, n. sp.

Frutex 1–3-metralis; ramuli hornotini dense accumbenti-villosuli, annotini glabri, fusco-purpurei. Folia decidua, ovali-ovata v. oblongo-ovata, rarius ovali-oblonga, obtusa breviter mucronulata, interdum acutiuscula, rarissime emarginata, basi rotundata, 10–25, plerumque 15–20 mm. longa et 8–17, plerumque 10–12 mm. lata, supra glabra minute rugulosa, laete viridia, subtus albida, dense papillosa, reticulo venularum impresso et dense tomento cinereo subaccumbenti-villoso obtecta, utrinsecus nervis 3–4 ut costa supra leviter impressis, subtus elevatis; petioli tomentosi, 2–3 mm. longi; stipulae subulatae, rubescentes, pubescentes, membranaceae, circiter 2 mm. longae. Corymbus laxus, 3–6-florus, ramulis lateralibus brevibus v. brevissimis plerumque 3-foliatis insidens, bracteis bracteolisque membranaceis subulatis rubescentibus 1.5–2 mm. longis instructus; pedunculus 0–5 mm. longus, sparse pubescens; pedicelli 2–6 mm. longi, graciles glabrescentes; calyx glaber, rubescens, dentes late ovati, obtusi v. acutiusculi, interdum mucronulati, 2 mm. longi ac lati, sursum sparse pilosi, margine scarioso; petala subrotundata rosea, 2.5–3 mm. longa et 2.5 mm. lata, erecta, basi brevissime unguiculata; stamina 20, sepalis subaequilonga v. paullo breviora; carpidia 2 (semper?) apice dense villosa. Fructus (immaturus) obovoideus, ad 5 mm. longus, apice truncatus; pyrenae 4.5 mm. longae, 3.5 mm. latae, dorso leviter irregulariter foveolatae, ventre stylum paullo infra apicem gerentes, hypostylio dimidium v. fere dimidium dorsum occupante sparse villosulo v. glabro.

Western Hupeh: Hsing-shan Hsien, thickets, alt. 1700 m., June 1907 (No. **2176**, type). Western Szech'uan: Valley of Hsao-chin

Ho near Mon-kong Ting, alt. 2300–3300 m., June 1908 (No. 2169). Shensi: Tai-pei-shan, 1901, *W. Purdom*.

In the absence of ripe fruits the affinity of this species remains doubtful. It seems to be most closely related to the black-fruited *C. melanocarpa* Loddiges, which differs chiefly in its broader and larger, differently shaped leaves, often narrowed at the base, sparingly hairy on the upper surface while young and with a looser whitish tomentum beneath. Specimens of the forms from the Altai mountains usually referred to *C. melanocarpa* resemble our species in their smaller leaves, which, however, are hairy on their upper surface while young, oval in outline and generally broadly cuneate at the base. *Cotoneaster gracilis* also shows some resemblance to the red-fruited *C. integerrima* Medikus, which is easily distinguished by its larger acute or acutish leaves, smaller and shorter racemes, larger flowers and stouter branches. *Cotoneaster Zabelii* Schneider differs more widely in its densely villous calyx and the larger leaves, hairy on their upper surface at least while young. — The specimen from western Szech'uan (No. 2169) has smaller leaves than the type and fewer flowers in shorter racemes, while the specimens from Shensi are almost intermediate between the Hupeh and the Szech'uan specimens.

Sect. 2. CHAENOPETALUM Koehne.

Cotoneaster racemiflora K. Koch, *Dendr.* I. 170 (1869). — Schneider, *Ill. Handb. Laubholzk.* I. 754, fig. 424 e′–k (1906).

Mespilus racemiflora Desfontaines, *Cat. Hort. Paris*, ed. 3, 409 (1829).
Cotoneaster Fontanesii Spach, *Hist. Vég.* II. 77. (1834). — Briot in *Rev. Hort.* 1869, 33, t.
Cotoneaster nummularia Fischer & Meyer in *Ind. Sem. Hort. Petrop.* II. 31. (1835). — Aitchison in *Trans. Linn. Soc. Bot.* III. 64, t. 9 (1888).
Cotoneaster Fontanesii, α *Desfontainii* Regel in *Act. Hort. Petrop.* II. 312. (1873).
Cotoneaster numularia, β *racemiflora* Wenzig in *Linnaea*, XXXVIII. 189 (1874).

The type does not occur in China, but there are two well-marked varieties in Hupeh and western Szech'uan.

Cotoneaster racemiflora, var. **soongorica** Schneider, *Ill. Handb. Laubholzk.* I. 754, fig. 424 i (1906).

Cotoneaster Nummularia Trautvetter in *Bull. Soc. Nat. Mosc.* XXXIII. pt. I. 531 (*Enum. Pl. Songor. Schrenk.*) (1860).
Cotoneaster nummularia, var. *soongoricum* [sic] Regel & Herder in *Bull. Soc. Nat. Mosc.* XXXIX. pt. II. 58 (*Pl. Semenov.* No. 381) (1866).
Cotoneaster Fontanesii, var. *soongorica* Regel in *Act. Hort. Petrop.* II. 313 (1873).

Western Szech'uan: Tachien-lu, alt. 2600–3000 m., bush 2.5 m. tall, June and October 1908 (No. **1317**); valley of Hsao-chin Ho near Monkong Ting, alt. 2300–3000 m., June 1908 (Nos. **2166**, **2168**; bush 2–3 m. tall); Min Valley near Sung-pan Ting, alt. 2600 m., September 1910 (No. **4015**[a]; bush 1–2 m. tall); without locality, alt. 3900 m., arid places, June 1904 (Veitch Exped. No. 3514; bush 2 m. tall).

This is a common shrub in the dry, arid river valleys of western Szech'uan. In No. 1317 the fruits have usually only one stone and the hypostyle covers about one half of it all around, while in No. 4015[a] usually two stones are present with the hypostyle covering about one third of the dorsal side.

Cotoneaster racemiflora, var. **microcarpa** Rehder & Wilson, n. var.

Frutex 1–2-metralis ramis gracilibus virgatis; ramuli hornotini initio villosuli, demum glabrescentes, annotini fusco-rubri, nitiduli, vetustiores cinereo-fusci. Folia decidua, ovalia v. ovali-elliptica, rarius obovata, obtusa, rarius acutiuscula v. emarginata, mucronata, basi cuneata, rarissime rotundata, 10–17 mm. longa et 6–10 mm. lata, supra initio sparse villosi, demum glabra, obscure viridia, subtus appresse cinereo-tomentosa, interdum demum glabrescentia et pallide viridia; petioli graciles, 3–5 mm. longi, villosuli, saepe demum glabrescentes. Flores ignoti. Fructus 2–4 in racemis laxis, pedicellis cum pedunculo 1–1.5 cm. longis gracilibus villosulis v. fere glabris, ovoidei, 6–7 mm. longi et 5 mm. diam., apice truncato aperti, basi contracti, saturate rubri, glabri; pyrenae 2, 4–4.5 mm. longae et 3 mm. diam., ventre planae, nitidulae, stylum paullo infra apicem gerentes, dorso leviter sulcatae, brunneae, hypostylio quadrantem dorsi occupante flavido-brunneo villosulo nitidulo.

Western Szech'uan: Min Valley, near Sung-pan Ting, alt. 2300–2600 m., September 1910 (No. **4014**).

This variety approaches *Cotoneaster racemiflora*, var. *soongorica* in the character of its pubescence, but the small, ovoid fruits easily distinguish it from this and all other forms of *Cotoneaster racemiflora*. It may possibly be a distinct species.

Cotoneaster hupehensis Rehder & Wilson, n. sp.

Cotoneaster integerrima Hemsley in *Jour. Linn. Soc.* XXIII. 260 (pro parte, non Medikus) (1887).

Frutex 1.5 m. altus ramis gracilibus divaricatis; ramuli initio appresse villoso-tomentosi, demum glabrescentes; annotini fusco-rubri, glabri, nitiduli. Folia decidua, ovata v. ovalia ad elliptica, obtusa v. acutiuscula, mucronulata, rarissime emarginata, 1.5–2.8 cm. longa et 1–1.8 cm. lata, supra sparsissime accumbenti-pilosa, demum glabra, nitidula, saturate viridia, subtus tomento cinereo tenui sed denso obtecta, nervis utrinsecus 4–5 supra impressis subtus elevatis; petioli graciles, 3–5 mm. longi, villosuli. Corymbi numerosi secus ramos elongatos in apice ramulorum brevium lateralium, 3–7-flori; pedicelli cum pedunculo 1–1.5 cm. longi, villoso-tomentosuli; calyx densius v. laxius villosulus, interdum cito glabrescens, dentes late triangulares

vix 1 mm. longi, villosuli; petala alba, subrotundata, circiter 5 mm. diam., breviter unguiculata, basi intus pilosa; stamina circiter 20, longiora petalis paullo breviora, antheris flavis; carpidia 2, apice villosa. Fructus globosus, 8–10 mm. diam., ruber, leviter pruinosus; pyrenae 2, arcte coherentes, obovoideae, 5–6 mm. longae et 4–5 mm. diam., ventre planae, stylum in apice gerentes, dorso valde convexae, sulcis distinctis 4–5, hypostylio apicem applanatum tantum obtegente irregulariter gibboso villosulo.

Western Hupeh: Hsing-shan Hsien, 1300–2000 m., not common, October 1907 (No. **334**, type); Pao-kang-Hsien, August 1901 (Veitch Exped. No. 2030[a]). Eastern Szech'uan: South Wushan, *A. Henry* (No. 5525). Western Szech'uan, without locality, cliffs, etc., 2100 m., August 1903 (Veitch Exped. No. 3509; shrub 4 m. tall).

This species seems most closely related to *C. multiflora* Bunge, but is easily distinguished by the densely tomentulose lower surface of the leaves, the villose inflorescence and by the small hypostyle of its stones. From *C. racemiflora* K. Koch it differs in the larger flowers, longer stamens with yellow anthers, larger globose fruit, and by the hypostyle covering only the flattened apex of the stones.

Cotoneaster multiflora Bunge in Ledebour, *Fl. Alt.* II. 220 (1830). — Ledebour, *Ic. Fl. Ross.* III. 22, t. 274 (1831). — Schneider, *Ill. Handb. Laubholzk.* I. 755, fig. 424 c, m–n (1906).

Cotoneaster reflexa Carrière in *Rev. Hort.* 1870–71, 520. — André in *Rev. Hort.* 1892, 327, fig. 100.

Cotoneaster vulgaris, var. *glabrata* Hort. ex *Kew Hand-list Trees and Shrubs*, I. 213 (synon.) (1894).

Western Szech'uan: near Tachien-lu, alt. 1600–2300 m., Septemper 1908 (No. **1061**, bush 1.5–3 m., fruit dark-red); north of Tachien-lu, alt. 2400–3000 m., Sept. 1910 (No. **4131**, bush 2–2.5 m., fruit scarlet). Shensi: north-west of Han-chung Hsien, 1910, *W. Purdom*; Yenan Fu, 1910, *W. Purdom*. Chili: east Wei-chang, 1909, *W. Purdom*.

In the original figure of *Cotoneaster multiflora* Bunge the fruit is shown as oblong-ovoid, whereas in the Chinese specimens the fruit is globose when mature but elongate in early stages of development. We rather suspect the figure cited above as made from immature specimens.

In Shensi this species is apparently very common. In western Szech'uan it is confined to dry warm river-valleys and is not common. In both the Shensi and Szech'uan specimens before us the mature leaves are glabrous and subglaucescent below.

Cotoneaster multiflora, var. **calocarpa** Rehder & Wilson, n. var.

A typo recedit foliis majoribus 2.5–4.5 cm. longis et 1.5–2.6 cm. latis,

elliptico-ovatis v. anguste elliptico-ovatis, apicem versus attenuatis, obtusis v. acutiusculis, mucronatis, subtus ad costam laxe adpresse villosis, ceterum sparse villosis v. fere glabris, fructibus copiosis majoribus, 10–12 mm. diam., laete rubris.

Western Szech'uan: Valley of Min river near Sungpan Ting, alt. 2300–2600 m., September 1910 (No. **4015**).

This variety differs from the type chiefly in the larger and comparatively narrower leaves being slightly hairy on the lower surface, and in the larger fruits. In the character of its leaves it resembles very much a flowering specimen from the Caucasus we have before us. On account of its large and copiously produced fruit it is very ornamental. No. 0329 of Wilson's photographs represents the shrub in full fruit from which the type specimens were taken.

Cotoneaster tenuipes Rehder & Wilson, n. sp.

Frutex 1–2-metralis ramis gracilibus; ramuli hornotini tomento cinereo-flavescente villoso-strigilloso obtecti, mox glabrescentes et fusco-purpurei, ramuli annotini glabri. Folia decidua, elliptico-ovata v. ovata v. anguste elliptico-ovata, acuta v. obtusiuscula, ea ramulorum elongatorum interdum breviter acuminata, basi late cuneata, 1.2–3.5, plerumque 2–3 cm. longa et 7–16, plerumque 10–12 mm. lata, supra initio sparse pilosa, laete viridia, subtus tomento cinereo accumbenti-villoso obtecta, nervis utrinsecus 3–4, supra leviter impressis, subtus leviter elevatis v. obsoletis; petioli villosuli, 3–5 mm. longi; stipulae membranaceae subulatae, pubescentes, circiter 5 mm. longae, mox deciduae. Flores ignoti. Fructus solitarii v. bini in apice ramulorum lateralium brevium, pedicellis cum pedunculo 4–8 mm. longis gracilibus tenuibus sparse villosulis, ovoidei, 10 mm. longi et 6 mm. diam., apicem applanatam versus plus minusve villosuli; pyrenae 2, obovoideae, 6–6.5 mm. longae et 4 mm. diam., ventre planae, nitidulae, stylum paullo infra apicem gerentes, dorso irregulariter sulcatae, hypostylio trientem dorsi occupante flavo-brunneo villosulo nitidulo.

Western Szech'uan: Min Valley, Sung-pan Ting, alt. 2600 m., August 1910 (No. **4544**).

In the absence of flowers it is uncertain to which section this species belongs, but it seems most nearly related to *C. racemiflora* K. Koch from which it differs chiefly in the usually acute or even short-acuminate leaves, the nearly black, usually solitary fruits and the narrower stones.

Cotoneaster glabrata Rehder & Wilson, n. sp.

Frutex 3–5-metralis ramis validiusculis; ramuli hornotini initio sparse adpresse pilosi, mox glabri, leviter angulati, virides v. plerumque

purpurascentes, annotini fusco-purpurei, vetustiores obscure fusci Folia coriacea, oblanceolato-oblonga, rarius oblongo-lanceolata, acuminata, basi cuneata, 4–7 cm. longa et 1.4–2.5 cm. lata, supra glabra, laete viridia, subnitentia, minute rugulosa, subtus initio sparse floccoso-villosa, mox glabrescentia, demum glabra, glauca, margine leviter revoluta, utrinsecus nervis 7–10 ut costa supra impressis subtus elevatis; petioli 5–7 mm. longi, initio sparse villosuli, demum glabri, basi auriculati; stipulae membranaceae, oblongae, 3 mm. longae, cito caducae. Corymbus multiflorus, fere planus, 2.5–4 cm. diam., in apice ramulorum terminalium et lateralium brevium; pedicelli breves, 1–4 mm. longi, cum pedunculo 1.5–2 cm. longi, sparse adpresse pilosi, glabrescentes, subangulosi, virescentes, bracteis bracteolisque membranaceis minutis caducis; calycis tubus turbinatus, sparse pilosus v. fere glaber, dentes orbiculari-ovati, circiter 1 mm. longi, glabri; petala suborbicularia, patentia, 2–3 mm. diam., basi abrupte unguiculata; stamina 20, petalis paullo breviora, antheris purpureis; carpidia 2, apice sparse villosa; styli staminibus triente breviores, stigmate capitato concavo. Fructus desiderantur.

Western Szech'uan: Wa-shan, alt. 2000–2800 m., rare, July 1906 (No. **2185**).

Apparently most closely allied to *C. salicifolia* Franchet and particularly to the var. *Pritzelii* Schneider, which differs, though its leaves are glabrous or nearly so at maturity, in the pubescent branchlets and inflorescence. *Cotoneaster glaucophylla* Franchet is easily distinguished by its shorter ovate or oval leaves.

Cotoneaster salicifolia Franchet in *Nouv. Arch. Mus. Paris*, sér. 3, vol. VIII. p. 225 (*Pl. David.* II. 43) (1885). — Schneider, *Ill. Handb. Laubholzk.* I. 759 (1906); in Fedde, *Rep. Nov. Sp.* III. 221 (1906).

Western Szech'uan: Mupin, thickets, alt. 1300–2500 m., June and November 1908 (No. **1133**; bush 2–5 m., flowers white, fruit scarlet); Mt. Omei, June 1904 (Veitch Exped. No. 1868; bush 3 m.).

In Franchet's original description, cited above, the leaves are given as ½ cent. broad. This is probably a clerical error for 1–2 cent. broad. The fruits not described by Franchet are ovoid, about 4 mm. long and 3 mm. across, scarlet; stones 2–3, 3 mm. long, with the style at the apex of the inner surface, and the glabrous hypostyle covering one half or slightly more of the dorsal side, the hypostyle dark brown, the lower part light brown.

Cotoneaster salicifolia, var. **rugosa** Rehder & Wilson, n. var.

Cotoneaster rugosa Pritzel in *Bot. Jahrb.* XXIX. 385 (1900). — Schneider, *Ill. Handb. Laubholzk.* I. 758, fig. 426 f, 427 g–r (1906); in Fedde, *Rep. Nov. Sp.* III. 221 (1806).

Western Hupeh: north and south of Ichang, alt. 1600–2000 m., thickets, June and October 1907 (No. **335**; bush 1–3 m. tall, flowers white, fruit coral-red).

Our specimens have shorter leaves and smaller corymbs than those described for the type by Pritzel, otherwise they agree exactly with his description. From the typical *Cotoneaster salicifolia* this variety is distinguished by the more lanuginose shaggy pubescence of the lower surface of the leaves and of the branchlets, the duller green and smaller, comparatively broader leaves and the larger fruits with usually 2 stones, the hypostyle covering less than one half of the dorsal side.

Cotoneaster salicifolia, var. **floccosa** Rehder & Wilson, n. var.

Frutex 2–4-metralis ramis gracilibus curvatis; ramuli hornotini initio adpresse villosi, cito glabrescentes, angulati, violascentes, annotini rubro-brunnei, vetustiores cinereo-fusci. Folia coriacea, partim persistentia, oblongo-lanceolata, rarius oblanceolato-oblonga v. anguste elliptica, breviter acuminata, basi cuneata, 2–7, plerumque 3-5 cm. longa et 8–18 mm. lata, supra laete viridia, glabra, nitentia, rugosa, subtus initio dense tomento floscoso-villoso albo vestita, demum glabrescentia et glauca, nervis utrinsecus 10–14 supra ut costa manifeste impressis subtus elevatis glabris rubescentibus; petioli 3–5 mm. longi, cito glabrescentes. Corymbus densus, 2–3 m. diam., 9–15-florus; pedicelli cum pedunculo 0.5–4 m. longi, adpresse villosi ut calycis tubus; calycis dentes triangulares, 1 mm. longi; petala nondum evoluta. Fructus subglobosus, circiter 6 mm. diam., laete ruber; pyrenae plerumque 3, rarius 2 v. 4, oblongo-triangulares, 3.5–4 mm. longae et 1.5–2 mm. diam., utrinque acutae, stylum in apice gerentes, hypostylio dimidium dorsum v. ultra occupante glabro.

Western Szech'uan: west and near Wên-ch'uan Hsien, alt. 2300–2600 m., July and November 1908 (No. **1133**[a], type); same locality, alt. 2600–3000 m., October 1910 (No. **4199**).

Easily distinguished from the type and other varieties by its floccose caducous tomentum. The leaves too are narrower and the fruits a brighter red.[1]

[1] An allied species is the following of which a full description may be added here.

Cotoneaster Harroviana Wilson in *Gard. Chron.* ser. 3, LI. 3. (1912).

Frutex 1.5–2 m. altus ramis divaricatis curvatis; ramuli hornotini initio tomento villoso flavescenti-cinereo adpresso vestiti, mox glabrescentes, annotini glabri, fusco-rubri. Folia subcoriacea partim persistentia, elliptico-oblonga, rarius elliptica v. ovalia v. obovato-oblonga, acuta v. breviter acuminata, mucronata, basi cuneata, 2.5–4.5 cm. longa et 1–1.5 cm. lata, supra initio sparse pilosa, cito glabrescentia, leviter rugulosa, saturate viridia, subnitentia, subtus dense tomento villoso initio flavescente obtecta, demum ad costam venasque saepe glabrescentes, secundo anno interdum partim glabrescentia et epidermidem glaucescentem papillosam detegentia, nervis utrinque 8–10 supra impressis subtus elevatis; petioli 4–5 mm. longi, villosi. Corymbus pluriflorus, densus, 3–4 cm. diam., 2–2.25 cm. longus,

Cotoneaster Henryana Rehder & Wilson, n. sp.

Cotoneaster frigida Pritzel in *Bot. Jahrb.* XXIX. 386 (non Wallich) (1900).
Cotoneaster rugosa, var. *Henryana* Schneider, *Ill. Handb. Laubholzk.* I. 758, fig. 426 g, 427 m–m′ (1906); in Fedde, *Rep. Nov. Sp.* III. 221 (1906). — Weathers in *Gard. Chron.* ser. 3, XLVI. 339, fig. 148 (1909).

Frutex 2–4-metralis ramis robustis; ramuli hornotini tomento flavido-cinereo adpresso villoso obtecti basin versus saepius glabrescentes, annotini glabrescentes v. glabri, purpureo-fusci v. flavo-fusci. Folia chartacea, decidua, oblongo-elliptica v. oblongo-lanceolata, 6–9 cm. longa v. interdum longiora, 2–3 cm. lata, acuta v. breviter acuminata, mucronata, basi cuneata, supra obscure viridia, pilis accumbentibus conspersa, leviter rugulosa, demum glabrescentia, subtus tomento albo-cinereo villoso laxe obtecta, ad costam venasque densius et flavescente, nervis utrinsecus 8–10 supra impressis subtus elevatis; petioli robusti, 4–8 mm. longi, dense villosi; stipulae membranaceae, lanceolatae, rubescentes, 5–6 mm. longae, deciduae. Corymbus laxus, planus, 4–6 cm. diam., 2–4 cm. longus, bracteis bracteolisque minutis caducis; pedicelli breves, 0.5–3 mm. longi ut pedunculi dense adpresse villosi; calycis tubus turbinatus, dense adpresse villosus, dentes triangulari-ovati, circiter 1.5 m. longi, obtusi v. acutiusculi, plerumque mucronati, interdum glabrescentes; petala suborbicularia, 2.5–3 mm. diam., basi breviter unguiculata, margine eroso, alba, patentia; stamina 20, petalis paullo breviora, antheris purpureis; carpidia 2, apice pilosa, stylis staminibus subaequilongis, stigmate capitato. Fructus ovoideus, 7 mm. longus et 5 mm. diam., ruber, sparse pilosus v. fere glaber; pyrenae 2, obovoideae, 3.5–4 mm. longae et 2.5–3 mm. diam., stylo apici inserto, hypostylio dorsi trientem rarius ultra occupante villosulo paullo pallidiore quam pars inferior dorsi.

bracteis bractiolisque subulatis villosis deciduis 3–5 mm. longis; pedicelli brevissimi ut pedunculi adpresse villosi; calycis tubus turbinatus, adpresse villosus ut dentes triangulares acuti 1.5–2 mm. longi; petala orbicularia, 3 mm. diam., brevissime unguiculata, patentia, concava, erosa; stamina 20, petalis paullo breviora, antheris carneo-purpureis; carpidia 2, apice sparse villosa, stylis staminibus fere aequilongis, stigmate capitato. Fructus desiderantur.

Yunnan: 10 miles to south-west of Mengtsze, alt. 1600 m., November 1899, seeds collected in Veitch Expedition; specimens from Hort. Veitch, June 1911, No. 1315, type; mountains north of Mengtze, *A. Henry* (No. 10785).

A handsome species most closely allied to *C. coriacea* Franchet, which has obovate, rounded more coriaceous leaves. In Henry's specimen the leaves are rather smaller, more obtuse, and the calyx shows a tendency towards becoming glabrescent. From *C. pannosa* Franchet, with which it has been confounded in cultivation, its larger, more coriaceous, shining green leaves and larger corymbs readily distinguish it.

Western Hupeh: *A. Henry* (No. 5752, type); Hsing-shan Hsien alt. 1600 m., thickets, July 1907 (No. **2182**; bush 2–4 m. tall); Patung Hsien, alt. 1600–2000 m., woodlands, June 1907 (No. **2183**; bush 2–2.5 m. tall). Eastern Szech'uan: South Wushan, mountains, 1900 (Veitch Exped. No. 1384, flowers and ripe fruit; bush 3 m.).

In its much larger leaves, pubescent on both surfaces and of softer texture, in its more densely villose branches and ovoid fruits, this Hupeh plant differs distinctly from *Cotoneaster salicifolia* Franchet and its varieties. It seems better to regard it as a distinct species rather than an extreme form of that species.

We have given a complete description of this species, since Schneider, when he established it as a variety of *Cotoneaster rugosa* Pritzel, gave only a few distinguishing characters. In Fedde's Repertorium cited above, Schneider refers this plant to the typical *Cotoneaster salicifolia* Franchet, a view which to us is quite untenable.

On No. 1384 (Veitch Exped.) Schneider (l. c.) based his *Cotoneaster rugosa*, var. *Pritzelii*. The specimen in the Herbarium of the Arnold Arboretum bearing that number is typical *Cotoneaster Henryana* and does not in the least agree with Schneider's description. The only specimen we have seen which shows any approach to Schneider's var. *Pritzelii* is from a plant cultivated in the Veitchian nurseries and distributed under the name of *Cotoneaster rugosa*, var. *Henryi*.

Cotoneaster rhytidophylla Rehder & Wilson, n. sp.

Frutex 2-metralis ramis robustis; ramuli hornotini tomento adpresse villoso lanuginoso flavescente dense vestiti, annotini sparse villosi, obscure fusci v. griseo-fusci. Folia coriacea, partim persistentia, elliptico-oblonga v. ovato-oblonga v. oblongo-lanceolata, 3–5.5, plerumque 4–5 cm. longa et 1–2 cm. lata, acuminata, basi attenuata, margine revoluta, supra luteo-viridia manifeste rugosa, initio sparse pilosa, demum glabrescentia et subnitentia, subtus dense tomento lanuginoso-villoso flavescente obtecta, reticulata, nervis utrinsecus 5–8 supra valde impressis, subtus elevatis; petioli robusti, 3–5 mm. longi, dense flavo-tomentosi; stipulae membranaceae, subulatae, sparse villosae, rubescentes, deciduae. Fructus immaturus, aurantiaco-ruber, pyriformis, 6 mm. longus et 4 mm. diam., 5–12 in corymbis densis 2.5–3 cm. diam. et 1.5–2 cm. longis, pedicellis brevissimis ut pedunculi dense flavescenti-villosis; pyrenae 3–4, triangulari-oboideae, 5–6 mm. longae et 3–3.5 mm. diam., ventre carinatae, stylum in apice v. paullo infra gerentes, dorso vix sulcatae, hypostylio circiter trientem dorsi occupante villosulo.

Western Szech'uan: Wa-wu-shan, Hung-ya Hsien, on cliffs, alt. 1300 m., September 1908 (No. **2184**).

A strikingly distinct species, most nearly related to *C. salicifolia* Franchet, from which it is easily distinguished by its strongly wrinkled leaves densely clothed with thick yellowish tomentum beneath, by the similar tomentum of the branchlets and by the pyriform fruit with 3 or 4 stones.

Cotoneaster Dammeri Schneider, *Ill. Handb. Laubholzk.* I. 760, fig. 429 h–k (1904); in Fedde, *Rep. Nov. Sp.* III. 222 (1906).

Cotoneaster humifusa Duthie apud Veitch, *Hort. Veitchii*, 396 (1906).

Western Hupeh: without locality, June and October 1900 (Veitch Exped. No. 1966, type); Changyang Hsien, alt. 1300 m., uplands, November 1907 (No. **481**; prostrate over rocks, etc.).

Cotoneaster Dammeri, var. **radicans** Schneider, *Ill. Handb. Laubholzk.* I. 760, fig. 428 a–b (1906); in Fedde, *Rep. Nov. Sp.* III. 222 (1906).

Cotoneaster radicans Dammer in *Herb. Berol.* ex Schneider, l. c. (synon.) (1906).

A typo praecipue differt inflorescentiis 1–2-floris 1–1.5 cm. longis, foliis saepe obovatis longius petiolatis petiolis 3–7 mm. longis gracilibus.

Western Szech'uan: Mupin, alt. 2000–2600 m., uplands, June and October, 1908 (No. **1071**; prostrate shrub): without locality, rocks, alt. 2600 m., May 1904 (Veitch Exped. No. 3510).

The character on which Schneider founded this variety breaks down, but the long peduncles and pedicels and constantly one or two flowered racemes separate it from the Hupeh form. The Hupeh plant has constantly shorter pedicels and peduncles. Schneider's original description of the inflorescence fits the variety better than it does the type judging by the specimens we have before us.

The fruit is globose and bright scarlet, and the normal habit of the plant prostrate and rooting. When hanging down free from the soil over cliffs the rooting habit is arrested.

Cotoneaster microphylla Wallich apud Lindley in *Bot. Reg.* XIII, t. 1114 (1827). — Baker in *Refug. Bot.* II. 49 (1896). — Hooker, f., *Fl. Brit. Ind.* II. 387 (1878). — Schneider, *Ill. Handb. Laubholzk.* I. 760, fig. 428 f–h, 429 g (1906).

We have seen no specimens from China which are identical with the type.

Cotoneaster microphylla, var. **cochleata** Rehder & Wilson, n. comb.

Cotoneaster buxifolia, forma *cochleata*, Franchet, *Pl. Delavay*. 224 (1890).

Western Szech'uan: Pan-lan-shan, west of Kuan Hsien, alt. 2300–2600 m., June 1908 (No. **2189**; prostrate over rocks, flowers white).

Cotoneaster microphylla, var. **vellaea** Rehder & Wilson, n. comb.

Cotoneaster buxifolia, forma *vellaea* Franchet, *Pl. Delavay*. 224 (1890).

Western Szech'uan: north of Tachien-lu, alt. 3000 m., July 1908 (No. 2188, growing appressed to rocks, or hanging over cliffs, flowers white).

This variety is well-marked; its small leaves are pubescent on both surfaces and the margins are very little reflexed.

Here may be added the description of a new species of which neither the ripe fruits nor the petals are known and which therefore cannot with absolute certainty be referred to one of the sections.

Cotoneaster breviramea Rehder & Wilson, n. sp.

Frutex 60–75 cm. altus ramosissimus ramis brevibus plus minus tortuosis; ramuli hornotini annotinique breviter villoso-tomentosi, vetustiores obscure grisei, innovationes plurimi brevissimi internodiis minimis v. fere nullis, inde rami ob bases petiolorum persistentes dense verrucosi. Folia subcoriacea, partim persistentia, elliptica v. elliptico-oblonga v. oblonga, acuta v. obtusiuscula, plerumque mucronulata, basi cuneata, 8–15 mm. longa et 4–6 mm. lata, supra initio dense villosa, tarde glabrescentia, demum nitidula, minute reticulata, subtus tomento villoso albido obtecta, utrinsecus nervis circiter 2 supra obsoletis subtus leviter elevatis; petioli dense villosi, 1–2 mm. longi; stipulae membranaceae, subulatae, villosae, 1–1.5 mm. longae. Flores terminales, subsessiles, plerumque solitarii, rarius bini, rarissime terni, basi bracteis subulatis villosis; calycis tubus ovoideo-turbinatus, circiter 4 mm. longus, adpresse villosus, dentes late triangulares acuti, 1 mm. longi; petala desunt; stamina 20, sepalis longiora; carpidia 2, apice dense villosa. Fructus desiderantur.

Western Szech'uan: without locality, exposed rocks, alt. 1800 m., July 1903, (Veitch Exped. No. 3513).

This species, which in its habit and general appearance is unlike any other species, most resembles *C. microphylla*, var. *vellaea* Rehder & Wilson, but the leaves are larger and longer and much more hairy on the upper surface and the habit is quite different.

PYRACANTHA Roem.

Determined by E. H. Wilson.

Pyracantha crenulata Roemer in *Fam. Nat. Syn.* III. 220 (1847). — Schneider, *Ill. Handb. Laubholzk.* I. 761, fig. 430 c–d, 431 g–h (1906).

Mespilus Pyracantha Loureiro, *Fl. Cochin.* 320 (non Linnaeus) (1790).
Crataegus crenulata Roxburgh, *Hort. Beng.* 38 (nomen nudum)(1814).
Mespilus crenulata, D. Don, *Prodr. Fl. Nepal.* 238 (1825).
Crataegus crenulata Roxburgh, *Fl. Ind.* II. 509 (1832). — Lindley in *Bot. Reg.* XXX. t. 52 (1844).
Crataegus pyracantha, var. *crenulata* Loudon, *Arb. Brit.* II. 844 (1838).
Pyracantha chinensis Roemer, *Fam. Nat. Syn.* III. 220 (1847).
Cotoneaster crenulata K. Koch, *Dendr.* I. 175 (1869).
Sportella atalantoides Hance in *Jour. Bot.* XV. 207 (1877).
Crataegus Pyracantha Hemsley in *Journ. Linn. Soc.* XXIII. 260 (non Medikus) (1887).

Cotoneaster Pyracantha Pritzel in *Bot. Jahrb.* XXIX 386 (non Spach) (1900). — Pampanini in *Nuov. Giorn. Bot. Ital.*, nuov. ser. XVII. 288 (1910).

Western Hupeh: north and south of Ichang, abundant, alt. 300–1300 m., May and December 1907 (No. **662**; bush 1–3 m. tall, flowers white, fruit scarlet); Hsing-shan Hsien, roadside thickets, alt. 1000–1300 m., June 1907 (No. **2984**; bush 1–2 m. tall, flowers white); Fang Hsien, side of streams, alt. 1300 m., June 1907 (No. **2986**; bush 2–2.5 m. tall, flowers white); Fang Hsien, July 1901 (Veitch Exped. No. 349). Western Szech'uan: Valley of Min river, Wên-chuan Hsien, alt. 1300–2000 m., June and November 1908 (No. **2985**; bush 1–2 m. tall, flowers white, fruit orange-scarlet); Mt. Omei, May 1904 (Veitch Exped. Nos. 4871, 4871 a). Yunnan: Mengtze, alt. 1800 m., *A. Henry* (No. 10625).

An exceedingly common shrub very variable in size and texture of leaves but always with glabrous inflorescence and flowers. In shape the leaves are fairly constant but vary much in degree of crenation. The fruits vary from red to orange-scarlet; the leaves are commonly used as "Tea." No. 2984 has very thin leaves; No. 2986 has elliptic-oblong leaves, 5–8 cm. long, very sparingly toothed and subglaucous below.

CRATAEGUS L.

Determined by C. S. Sargent.

Crataegus hupehensis Sargent, n. sp.

Arbor v. frutex 3–5-metralis; ramuli hornotini tenues glabri, annotini patentes, fusci v. purpureo-fusci; spinae rectae 1.5 cm. longae. Folia membranacea, ovata v. ovato-oblonga, acuminata, basi cuneata v. rotundata, serrata dentibus incurvis glandulosis, supra medium 3- v. 4-lobata, lobis acutis v. acuminatis, supra nitida, sparse villosa, demum glabrata, subtus glabra, in axillis nervorum barbata, 8–10 cm. longa, 4.5–8 cm. lata; petioli tenues glabri, eglandulosi, 3.5–5 cm. longi; stipulae foliaceae, lanceolatae v. cordato-falcatae, glanduloso-serratae, deciduae. Corymbus multiflorus, compactus, glaber, pedicellis 4–5 mm. longis; flores 1–1.2 cm. diam.; calycis tubus campanulatus glaber, lobis brevibus triangularibus apiculatis integris glabris post anthesin reflexis; stamina 20 antheris carneo-roseis; styli 5, basi tomento pallido circumdati. Fructus subglobosus, atroruber, conspicue punctatus, 2.5 cm. latus, 2 cm. longus; calyx persistens, tubo lato vadosoque in fundo sparse tomentoso, lobis adpressis persistentibus v. deciduis; pericarpium crassum, succulentum, edule; pyrenae 5, 10

mm. longae, 6 mm. latae, apice rotundatae, basi acutae, dorso obtuso-costatae, hypostylio angustissimo, ½ ventris partem occupante.

Western Hupeh: north and south of Ichang, alt. 1000–1800 m. May and October, 1907 (No. 446), June 5, 1907 (No. 2988); Nanto, April 1900 (Veitch Exped. No. 196): *A. Henry* (No. 7522).

Like *Crataegus pinnatifida* Bunge in northern China, *C. hupehensis* is largely cultivated as a fruit tree in some districts in Hupeh. Specimens with young flower-buds and only half-grown fruits collected by *D. Macgregor* in the vicinity of Ningpo in 1908, judging by the flower-buds of the spring branch, may belong to this species, but the very immature fruit is distinctly obovate.

Crataegus kulingensis Sargent, n. sp.

Frutex 3–7-metralis; ramuli hornotini tenues, recti, rubidi, nitidi; annotini fusco-aurantiaci, lenticellis numerosis oblongis albidis; spinae rectae, sparsae, 1–1.2 cm. longae. Folia membranacea, ovata v. obovata, acuminata v. acuta, basi cuneata in petiolum alatum decurrentia, serrata dentibus acuminatis incurvis glanduloso-apiculatis, supra medium 3–4-lobata lobis latis acuminatis, supra glabra nitida, subtus villosa, ad costam nervosque densissime; petioli tenues, sparse villosi, eglandulosi, 1.5–2 cm. longi; stipulae foliaceae, cordatae, glanduloso-serratae, persistentes. Flores ignoti. Fructus (immaturus?) subglobosus, sed latior quam longus, apice truncatus, basi rotundatus, atroruber, nitidus, conspicue punctatus, 1 cm. longus, 1.2 cm. latus; calyx persistens, tubo lato vadosoque, lobis acuminatis serratis supra medium sparse villosis reflexis; pericarpium crassum, succulentum; pyrenae 3, extremitatibus obtusis, dorso costatae costis carinatis, 6 mm. longae, hypostylio angusto, ½ partem ventris occupante.

Kiangsi: Kuling, not common, alt. 800–900 m. August 1, 1907 (No. 1526).

Mr. Wilson's specimens differ from those of all other eastern Asiatic species in the shape of the leaves which are probably densely tomentose early in the season, and at midsummer are distinctly villose especially on the midribs and veins, and I have given it a name in spite of the absence of flowers.

Crataegus cuneata Siebold & Zuccarini in *Abh. Akad. Münch.* 2, IV. 130 (*Fl. Jap. Fam. Nat.* I. 22) (1846).—Maximowicz in *Bull. Acad. Sci. St. Pétersbourg*, XIX. 176 (1873); in *Mél. Biol.* IX. 175 (1873).—Hance in *Jour. Bot.* XVI. 11 (1878). — Franchet in *Nouv. Arch. Mus.* sér. 2, V. 118 (*Pl. David.* I. 118) (1884). — Lavallée, *Icon. Arb. Segrez.* 13, t. 5 (1885). — Lange, *Rev. Spec. Gen. Crataegi*, 83. — Schneider, *Ill. Handb. Laubholzk.* I. 793, fig. 453 s–v, 454 a–c (1906).

Mespilus cuneata K. Koch in *Wochenschr. Gaertn. Pflanzenk.* V. 338 (1862).

Kiangsi: Kiukiang: alt. 1300 m. July 28, 1907 (No. **1524**; bush 1–1.3 m. high; thickets, abundant). Western Hupeh: north and south of Ichang, alt. 1000–1300 m. June 9, 1907 (No. **2989**; shrub 30–75 cm. high; anthers flesh pink; common). Chekiang: vicinity of Ningpo, *D. Macgregor*, 1908. Fokien: Dunn's Expedition to Central Fokien (No. 2599). Southern Japan (teste Maximowicz).

Crataegus sanguinea Pallas, *Fl. Ross.* I. 225 (1784). — Ledebour, *Fl. Alt.* II. 221 (1830); *Fl. Ross.* II. 88 (1844–46). — Ruprecht in *Bull. Phys. Math. Acad. Sci. St. Pétersbourg*, XV. 363 (1857). — Maximowicz in *Bull. Acad. Sci. St. Pétersbourg*, XIX. 176 (1873); in *Mél. Biol.* IX. 175 (1873). — Lange, *Rev. Spec. Gen. Crataegi.* 69 (1897).

Mespilus purpurea Poiret in Lamarck, *Encycl. Méth.* Suppl. iv. 73 (1816).
Crataegus glandulosa De Candolle, *Prodr.* IV. 627 (quoad plantas sibiricas; non Willdenow nec Michaux) (1825).
Mespilus sanguinea Spach, *Hist. Vég.* II. 62 (1834). — K. Koch, *Dendr.* I. 151 (1869).
Mespilus cosansaki K. Koch in *Wochenschr. Gaertn. Pflanzenk.* V. 396 (1862); in *Ann. Mus. Lugd.-Bat.* I. 249 (1863–84).
Crataegus sanguinea, a *genuina* Maximowicz in *Mém. Acad. Sci. St. Pétersbourg*, ix. 101 (*Prim. Fl. Amur.*) (1859). — Regel in *Mém. Acad. Sci. St. Pétersbourg*, sér. 7, IV. pt. iv. 58 (*Tent. Fl. Ussur.*) (1861). — Korshinsky in *Act. Hort. Petrop.* XII. 334 (1892). — Schneider, *Ill. Handb. Laubholzk.* I. 771, fig. 437 e–g, 438 d–f (1906).

Western Szech'uan: north of Tachien-lu, alt. 3000 m., June 9, 1908 (No. **2987**).

This specimen with only partly grown fruit is very doubtfully referred to this widely distributed northern Asiatic species. Some of the leaves of Mr. Wilson's specimen are broad and rounded and others cuneate at the base, while those of the eastern Siberian plant, so far as I have seen them, are cuneate at the base.

Crataegus Wilsonii Sargent, n. sp.

Frutex 1–7-metralis; ramuli tenues, tortuosi v. recti, fusco-aurantiaci, hornotini tomento villoso-albido vestiti, vetustiores puberuli v. glabri; spinae numerosae rectae v. leviter curvatae, robustae, 1–2.5 cm. longae. Folia membranacea, ovata v. obovata, acuta v. obtusa, basi lata rotundata, subcordata v. cuneata, in petiolum alatum decurrentia, serrata dentibus rectis acuminatis glandulosis, supra medium, 4–5-lobata lobis latis rotundatis v. acutis, juniora supra villosa, infra dense tomentosa, 4–5 cm. lata, matura supra glabra nitida, subtus sparse villosa; petioli villosi demum glabrati, eglandulosi, 1.5–2 cm. longi; stipulae lanceolatae v. ovatae, falcatae, acuminatae, glanduloso-

serratae, deciduae. Corymbus multiflorus, compactus, villosus, bracteis foliaceis falcatis glanduloso-serratis post anthesin persistentibus, pedicellis sparse villosis, 5 mm. longis; flores 1–1.2 cm. diam.; calycis tubus obconicus, sparse villosus, lobis acuminatis intus pubescentibus post anthesin reflexis; stamina 20, antheris carneo-roseis; styli 2 v. 3, rarissime 1, basi tomento pallido circumdati. Fructus breviter oblongus, coccineus, nitidus, 1 cm. longus, 6–7 mm. latus; calyx persistens, tubo angusto profundo in fundo tomentoso, lobis reflexis; pericarpium crassum succulentum; pyrenae 1–3, 6–7 mm. longae, 4 mm. latae, extremitatibus latae obtusae, dorso obtuse costatae, ventre profunde cavatae, hypostylio angusto ½ partem ventris occupante.

Western Hupeh: Fang Hsien, thickets, alt. 2200 m. May 27 and September, 1907, June 15, 1910 (No. 285).

This plant is of special interest because it is the first species of the great American group of *Tomentosae* which has been found in the Old World. It thus forms another important link between the floras of eastern Asia and eastern North America. It has the small late flowers, the small, soft and succulent fruit, and the obtuse nutlets deeply grooved on their inner faces, peculiar to the American species. The thin leaves with veins only slightly impressed on the upper surface place it with *C. tomentosa* Linnaeus and the other thin-leaved species of the group which are abundant in the Mississippi valley but are rare east of the Appalachian Mountains and do not extend to the Rocky Mountains.

A photograph of *C. Wilsonii* will be found under No. 082 of Wilson's photographs.

SPECIERUM ASIAE ORIENTALIS ENUMERATIO.

* Pyrenae venter planus.

† Nervi in loborum apicem excurrentes.

Sect. 1. HENRYANAE, n. sect.

Folia membranacea, serrata, longe petiolata, petiolis tenuibus, eglandulosis. Flores parvi; calycis lobi triangulari, apiculati, integri; stamina 20. Frutex subglobosus, amplus; calyx persistens, tubo lato vadosoque; pyrenae 3–5. Arbores ramulis tenuibus, spinis paucis.

1. **Crataegus Henryi** Dunn in *Jour. Linn. Soc.* XXXV. 494 (1903). — Schneider, *Ill. Handb. Laubholzk.* I. 770, f. 435, 1–6 (1906).

Yunnan: Mengtze, alt. 1650–2000 m., *A. Henry* (Nos. 9426, 9426A, 9426B).

2. **Crataegus hupehensis** Sargent. See p. 178.

3. **Crataegus kulingensis** Sargent. See p. 179.

Sect. 2. CUNEATAE Rehder in Vilmorin & Bois, *Frut. Vilmorin.* 105 (pro parte) (1904).

4. **Crataegus cuneata** Siebold & Zuccarini. See p. 179.

†† Nervi in loborum apicem et in sinus excurrentes.

Sect. 3. PINNATIFIDAE Zabel in Beissner, Schelle & Zabel, *Handb. Laubholz.-Ben.* 178 (1893).

5. **Crataegus pinnatifida** Bunge in *Mém. Acad. Sci. St. Pétersbourg*, II. 100 (*Enum. Pl. Chin. Bor.*) (1831). — Ruprecht in *Bull. Phys. Math. Acad. Sci. St. Pétersbourg*, XV. 131, 364 (1851). — Maximowicz in *Bull. Acad. Sci. St. Pétersbourg*, IX. 101 (*Prim. Fl. Amur.*) (1859). — Regel in *Gartenfl.* XI. 204, t. 366 (1862). — Hance in *Jour. Bot.* VIII. 313 (1870). — Korshinsky in *Act. Hort. Petrop.* XII. 334 (1892). — Lange, *Rev. Spec. Gen. Crataegi*, 36 t. 3, B (1897). — Henry in *Rev. Hort.* 1901, 309, t. fig. 2. — Komarov in *Act. Hort. Petrop.* XXII. 466 (*Fl. Manchuriae*) (1904).

Mespilus pinnatifida K. Koch, *Dendr.* I. 152 (1869).

Crataegus oxyacantha, var. *pinnatifida* Regel in *Act. Hort. Petrop.* I. 118 (*Rev. Spec. Gen. Crataegi*) (1871–72).

Crataegus pinnatifida, var. *typica* Schneider, *Ill. Handb. Laubholzk.* I. 769, fig. 435 a–f, 436 a–g (1906).

Eastern Siberia to Korea and northern China.

Crataegus pinnatifida, var. **major** N. E. Brown in *Gard. Chron.* n. ser. XXVI. 621, fig. 121 (1886). — Henry in *Rev. Hort.* 1901, t. fig. 1.

Crataegus Korolkowii Schneider, *Ill. Handb. Laubholzk.* I. 770, fig. 435 g–h, 436 e–h (non Henry) (1906).

Often cultivated for its fruit in the neighborhood of Peking and in Korea.

This plant does not appear to be known in a wild state. It is aborescent in habit, while the type is usually shrubby; the leaves are larger and the much larger fruit is distinctly obovate, not short-oblong as in the type. With our present knowledge of the Chinese Crataegi it seems best, however, to consider this a vigorous large-fruited form developed by selection and long cultivation.

** Pyrenae venter plus minus rugosus v. cavatus.

† Nervi in loborum apicem excurrentes.

Sect 4. SANGUINEAE Zabel in Beissner, Zabel & Schelle, *Handb. Laubholz.-Ben.* 174 (pro parte) (1903).

Eusanguineae Rehder in Vilmorin & Bois, *Frut. Vilmorin.* iii. [1904].

‡ Fructus sanguineus.

6. **Crataegus sanguinea** Pallas, see p. 180.

7. **Crataegus Maximowiczii** Schneider, *Ill. Handb. Laubholzk.* I. 771, figs. 437 a-b′, 438 f. a–c (1906). — Komarov in *Act. Hort. Petrop.* XXV. 816 (*Fl. Manchuriae*) (1907).

Crataegus sanguinea, β *villosa* Ruprecht in *Bull. Phys. Math. Acad. Sci. St. Pétersbourg*, XV. 131 (1857). — Maximowicz in *Bull. Acad. Sci. St. Pétersbourg*, IX. 101 (*Prim. Fl. Amur.*) (1859). — Regel in *Mém. Acad. Sci. St. Pétersbourg*, sér. 7, IV. pt. iv. 58 (*Tent. Fl. Ussur.*) (1861). — Fr. Schmidt in *Mém. Acad. Sci. St. Pétersbourg*, sér. 7, XII. No. 2, 128 (*Fl. Sachalin.*) (1868). — Korshinsky in *Act. Hort. Petrop.* XII. 334 (1892). — Palabin in *Act. Hort. Petrop.* XIV. 118 (1895).

Eastern Siberia to Saghalin and Korea.

8. **Crataegus dahurica** Koehne, *Herb. Dendr.* No. 389. — Schneider, *Ill. Handb. Laubholzk.* I. 773, fig. 437 n–o, 438 g–i (1896).

Crataegus purpurea Bosc apud De Candolle, *Prodr.* II. 628 (1825). — Watson, *Dendr. Brit.* I. t. 60 (1825). — Loudon, *Arb. Brit.* II. 822, fig. 582 (1838).

Eastern Siberia.

‡‡ Fructus niger.

9. **Crataegus chlorosarca** Maximowicz in *Bull. Soc. Nat. Mosc.* LIV. 20 (1879). — Lange, *Rev. Spec. Gen. Crataegi*, 88 (1897). — Komarov in *Act. Hort. Petrop.* XXII. 471 (*Fl. Manchuriae*) (1904). — Schneider, *Ill. Handb. Laubholzk.* I. 773, fig. 437 p–q, 438 n–o (1906).

Saghalin to Korea and northern Japan.

10. **Crataegus dsungarica** Lange, *Rev. Spec. Gen. Crataegi*, 43 (1897). — Schneider, *Ill. Handb. Laubholzk.* I. 774, fig. 437 k–m, 438 g–i. (1906).

Crataegus pinnatifida, a *songarica* Dippel, *Handb. Laubholzk.* III. 447 (1903).

Mespilus dsungarica Hort. apud Dieck *Cat. Hort. Zöschen*, 1885, 49 (nomen nudum).

Shan-tung: August 1907, *F. N. Meyer* (No. 285). Eastern Siberia.

Meyer's specimen is without flowers or fruit, but the leaves closely resemble those of *C. dsungarica* cultivated in the Arnold Arboretum and obtained from Späth's Nursery in Berlin. I have not seen wild specimens from Siberia.

Sect. 5. TOMENTOSAE Sargent in *Rhodora*, iii. 77 (1901).

11. **Crataegus Wilsonii** Sargent. See p. 180.

†† Nervi in loborum apicem et in sinus excurrentes.

Sect. 6. OXYACANTHAE Zabel in Beissner, Schelle & Zabel, *Handb. Laubholz.-Ben.* 175 (1903).

12. **Crataegus chitaensis** Sargent, n. sp.

Frutex; ramuli tenues, tortuosi v. recti, glabri, rubri, nitidi; spinae rectae, tenues, rubrae 1–1.2 cm. longae. Folia membranacea, ovata, acuminata basi truncata v. cuneata, in petiolum decurrentia, glanduloso-serrata, supra luteo-viridia, nitida, subtus pallida, glabra, in axillis nervorum sparse barbata, 3–4 cm. longa et lata, profunde trilobata, lobis lateralibus patentibus acuminatis rectis v. recurvis, lobo medio majore trilobulato lobulis acuminatis rectis, nervis in loborum apicem et in sinus excurrentibus; petioli tenues, glabri, biglandulosi; 1–1.5 cm. longi; stipulae foliaceae, 3-lobatae, glanduloso-serratae, persistentes. Flores ignoti. Fructus subglobosus v. breviter oblongus, rubro-aurantiacus, 6–7 mm. longus, 5–6 mm. latus; calyx persistens, tubo angusto profundo in fundo dense tomentoso, lobis reflexis rubris; pericarpium succulentum; pyrenae 3, 6 mm. longae, 3 mm. latae, apice rotundatae, basi acutae, dorso obtuse-costatae, ventre profunde cavatae cavis orbiculatis.

Eastern Siberia: bottom-lands of the Chita River, Chita, *C. S. Sargent*, August 12, 1903.

The shape of the leaves of this plant suggests a small-leaved form of *C. pinnatifida* Bunge which does not appear to extend as far east as the valley of the Chita River, but the cavities in the ventral faces of the nutlets separate it from that species and place it with the Oxyacanthae. The shape of the leaves is so different from those of all forms of the species of this group that even without the flowers I do not hesitate to describe it. Geographically *C. chitaensis* is of considerable interest as it is the only species of this group reported from eastern Asia.

Sectio incerta.

13. **Crataegus Komarovii**, nov. nom.

Crataegus tenuifolia Komarov in *Act. Hort. Petrop.* XVII. 435 (non Britton) (1901); XXII. 470 (*Fl. Manchuriae*) (1904).

Northern Korea.

OSTEOMELES Lindley.

Determined by E. H. Wilson.

Osteomeles Schwerinae Schneider, *Ill. Handb. Laubholzk.* I. 762, fig. 430 m, 431 o–r (1906); in Fedde, *Rep. Nov. Sp.* III. 222 (1906).

Osteomeles anthyllidifolia Franchet, *Pl. Delavay.* 227 (non Lindley) (1890).—Hooker f. in *Bot. Mag.* CXX. t. 7354 (1894).

Yunnan: Mengtze, alt. 1500–1800 m., *A. Henry* (Nos. 9315, 9315[a], type). Western Szech'uan: banks of Yangtsze river near city of Sui Fu, alt. 360 m., April 1908 (No. **2371**; bush 1–1.60 m. tall, flowers white): Min valley, around Mao-chou, alt. 1300–2000 m., May and September 1908 (No. **1016**; bush 1–3 m. tall, flowers white, fruits black with purple bloom); cliffs on Yangtsze near Sui Fu, April 1904 (Veitch Exped. No. 3518); Tung valley, July 1903 (Veitch Exped. No. 3518[a]).

This western Chinese species is readily distinguished from the insular *Osteomeles anthyllidifolia* Lindley by its smaller and narrower leaves, smaller flowers, glabrescent calyx and glabrous fruit. *Osteomeles subrotunda* K. Koch in *Ann. Mus. Lugd.-Bat.* I. 250, figured in *Hooker's Icon.* XXVII. t. 2644, appears to be more closely related to *O. anthyllidifolia* Lindley than to *O. Schwerinae* Schneider.

In our No. 1016 the calyx is glabrous or nearly so and the sepals shorter than in the type. No. 3518 Veitch Exped. has much larger flowers than the type and they are commonly solitary.

In Szech'uan this plant is restricted to the river-valley where a dry, hot climate obtains.

PHOTINIA Lindl.

Determined by Alfred Rehder and E. H. Wilson.

Photinia serrulata Lindley in *Trans. Linn. Soc.* XIII. 103 (excl. syn. *Crataegus glabra* Thunberg) (1821). — Hemsley in *Journ. Linn. Soc.* XXXIII. 263 (1887). — Schneider, *Ill. Handb. Laubholzk.* I. 707, fig. 390 a–b, 391 a–b. (1906).

Crataegus glabra Loddiges, *Bot. Cab.* III. t. 248 (1818).—Sims in *Bot. Mag.* XLVII. t. 2105 (1820).—Savi, *Fl. Ital.* II. 13, t. 45 (1822). — Loiseleur, *Herb. Amat.* VIII. t. 554 (1827). — Drapiez, *Herb. Amat.* VI. 398 (1833).

Mespilus glabra Colla, *Hort. Ripul.* 90 t. 36 (excl. descript.) (1824).

Crataegus serratifolia Desfontaines, *Cat. Hort. Paris*, ed. 3, 408 (1829).

Photinia glabra, var. *chinensis* Maximowicz in *Bull. Acad. Sci. St. Pétersbourg*, XIX. 179 (1873): in *Mél. Biol.* IX. 179 (1873).

Photinia pustulata S. Moore in *Jour. Bot.* XVI. 138 (1878).

Kiangsi: Kuling, thickets, alt. 1300 m. July 1907 (No. **1676**; bush 2 m. tall). Western Hupeh: south of Ichang, alt. 300–1000 m., May and October 1907 (No. **449**; bush or tree 3–10 m. tall, flowers white, fruits scarlet); without precise locality, April and October 1900 (Veitch Exped. Nos. 167, 391, 462 a.). Eastern Szech'uan: South Wushan, *A. Henry* (No. 1490). Western Szech'uan: Mt. Omei, May 1904 (Veitch Exped. No. 4873); without precise locality, *A. von Rosthorn* (No. 1697). Chekiang: vicinity of Ningpo, 1908, *D. Macgregor*. Yunnan: Mi-lê district, *A. Henry* (No. 9899); Mengtze, *A. Henry* (Nos. 9899 b, 9795); Linan, *A. Henry* (No. 10576).

A very common evergreen bush or small tree throughout the warm-temperate parts of China, varying considerably in the size and shape of its leaves. The only figure we have found of the true *Photinia glabra* Maximowicz (*Crataegus glabra* Thunberg) is published by Shirasawa, *Icon. Ess. For. Jap.* I. 83 t. 47, fig. 13-24 (1900). All the early figures appear to us to belong to the Chinese plant, *Photinia serrulata* Lindley.

It is possible that Henry's Yunnan specimens, which are all in fruit, belong to *Photinia Lindleyana* Wight & Arnott, but the distinctions between these two species are not very obvious.

Photinia Davidsoniae Rehder & Wilson, n. sp.

Arbor 6–15-metralis coma densa valde ramosa; ramuli hornotini laxe adpresse villosuli, annotini glabri, initio aurantiaco-rubri, demum purpureo-rubri, vetustiores cinerei; gemmae acutiusculae, minutae, vix 1 mm. excedentes. Folia persistentia, coriacea, oblanceolata v. oblonga, rarissime elliptica, acuminata v. acuta, basi cuneata, 6–15 cm., plerumque 10–12 cm. longa et 3–4.5 cm. lata, margine leviter revoluta, serrulata serraturis glanduliferis, supra laete viridia, nitidula, initio pilis brevissimis conspersa, mox glabra, subtus pallidiora, initio praesertim secus costam adpresse villosa, mox glabra, costa supra impressa, subtus elevata, nervis utrinsecus 10–12 ascendentibus subtus vix elevatis. Corymbus terminalis multiflorus, 10–12 cm. diam.; axes secundarii graciles, teretes, sparse villosuli, infimi saepe subverticillati; pedicelli 1.5–4 mm. longi, villosuli; bracteae bracteolaeque membranaceae, minutae, caducae; flores 10–12 mm. diam., albi; calycis tubus turbinatus, 3.5 mm. diam., extus sparse adpresse villosulus, dentes erecto-patentes, late triangulares, circiter 1 mm. longi, plerumque acutiusculi, mucronulati, utrinque villosuli; petala patentia, orbicularia, 3.5–4 mm. diam., apice rotundata, basi breviter unguiculata, glabra; stamina 20, 2-serialia, petalis dimidio breviora; ovarium semisuperum, biloculare, apice dense villosum; styli 2, inde

a medio connati, stamina superantes, basi villosi, stigmate applanato saepe capitato. Fructus aurantiaco-ruber, globosus v. subglobosus, 7–10 mm. longus, glaber, calycis dentibus persistentibus incurvis; semina 2–4, obscure brunnea, ovoidea, 4–5 mm. longa, utrinque acutiuscula.

Western Hupeh: near Ichang, alt. 300–600 m., April and December 1907 (No. 685, type); south-west of Ichang, alt. 300 m., November 1907 (No. 484); mountains south of Ichang, May and October 1900 (Veitch Exped. Nos. 167 a, 391 a, 462); Ichang and immediate neighborhood, *A. Henry* (Nos. 1649, 7604).

Allied to *Photinia serrulata* Lindley, which has prominent winter-buds 3–4 mm. in diameter, perfectly glabrous and somewhat thicker leaves, the petioles 2–4 cm. long, perfectly glabrous shoots and inflorescence, smaller flowers about 6–7 mm. in diameter and smaller ovoid fruits about 5 mm. in diameter, with the branches of the inflorescence shorter, rather thick and angular in the dried state.

This new Photinia is one of the handsomest evergreen trees in central China and is commonly planted around shrines and tombs. The short interior branches are frequently spinescent. The name "Tung-ching" (winter-green) is sometimes applied to this tree, but this name properly belongs to *Xylosma racemosum* Miquel. A photograph of this tree will be found under No. 678 of Wilson's photographs.[1]

Photinia villosa De Candolle, *Prodr.* II. 631 (1825). — Sargent in *Garden & Forest* I. 67, fig. 12 (1888). — Schneider, *Ill. Handb. Laubholzk.* I. 710, fig. 392 h–i, 393 c–f (1906).

Crataegus villosa Thunberg, *Fl. Jap.* 204 (1784).
Stranvaisia digyna Siebold & Zuccarini in *Abh. Akad. Münch*, IV. 2. 129 (*Fl. Jap. Fam. Nat.* I. 21) (1845).
Pourthiaea villosa Decaisne in *Nouv. Arch. Mus. Paris*, X. 147, 149 (1874). — Shirasawa, *Icon. Ess. For. Jap.* I. t. 29, fig. 1–13 (1900).
Pourthiaea Cotoneaster Decaisne, l. c.
Photinia variabilis Hemsley in *Jour. Linn. Soc.* XXIII. 263 (pro parte) (1887).

The type does not occur in central or western China.

Photinia villosa, var. sinica Rehder & Wilson, n. var.

Arbor 6–8-metralis, gracilis; ramuli hornotini sparse villosi, annotini glabri, fusco-rubri, vetustiores grisei, lenticellati; gemmae ovoideae, acutiusculae, circiter 2 mm. longae, glabrae. Folia membranacea, decidua, elliptica v. oblongo-elliptica, rarius oblongo-obovata, acuminata, basi cuneata, rarissime subrotundata, 4.5–8 cm. longa et 1.8–4 cm. lata, minute et argute serrulata, serraturis mucronulatis, supra laete viridia, initio sparse villosa, demum glabra, subtus pallidiora,

[1] This species is named for Mrs. Henry Davidson of the Friend Foreign Mission, Chengtu, Szech'uan, as a mark of esteem and in grateful remembrance of services rendered after my serious accident in the autumn of 1910. — E. H. Wilson.

sparse laxe villosa praesertim ad nervos, demum interdum glabra v. fere glabra, utrinsecus nervis 4–6 subtus ut costa elevatis; petioli 2–5 mm. longi, villosi. Racemus v. corymbus 5–8-, rarius ad 15-florus, laxe villosus, ramulos breves terminans; axes secundarii plerumque simplices, rarius 3-flori; pedicelli graciles, 1.5–3 cm. longi, fructiferi manifeste verrucosi; flores albi, 1.5 cm. diam.; calycis tubus late turbinatus, circiter 5 mm. diam., cinereo-villosus, dentes patentes, late triangulares, 2–2.5 cm. longi, extus dense, intus sparse villosi v. fere glabri; petala patentia, orbicularia, circiter 5 mm. diam., apice rotundata, basi breviter unguiculata; stamina 20, petalis breviora; ovarium semisuperum, apice villosum; styli 3, fere ad basin liberi, glabri. Fructus ovoideus v. ovoideo-pyriformis, 14–16 mm. longus et 9–11 mm. diam., aurantiaco-scarlatinus, glaber, calycis dentibus erectis villosulis coronatus; semina obovoidea, 4–5 mm. longa, obscure brunnea.

Western Hupeh: Fang Hsien, alt. 1300–1600 m., June and November 1907 (No. **610**, type); Hsing-shan Hsien, alt. 1000–1500 m., May and October 1907 (No. **333**); Changyang Hsien, woods, alt. 1000–1300 m., May 1907 (No. **2972**); without locality (Veitch Exped. No. 714, flowering branch only); *A. Henry* (No. 7724). Kiangsi: Kuling, side of stream, alt. 1300 m., July 1907 (No. **1666**).

This variety differs from the type chiefly in its thinner, generally elliptical, leaves, the larger and fewer flowers and fruits and the racemose very rarely (No. 2972) corymbose inflorescence. The specimen from Kiangsi has glabrous leaves.

Photinia Beauverdiana Schneider in *Bull. Herb. Boiss.* sér. 2, VI. 319 (1906); *Ill. Handb. Laubholzk.* I. 710, fig. 393 p–q (1906).

Pourthiaea villosa Pritzel in *Bot. Jahrb.* XXIX. 389 (non Decaisne) (1900).

Szech'uan: South Wushan, *A. Henry* (No. 5599, type). Western Hupeh: Fang Hsien, alt. 1300–1600 m., May 1907 (No. **2974**; bush 6 m. tall, flowers white); Patung Hsien, woods, alt. 1000–1300 m., May 1907 (Nos. **2970**, **2971**; bush 3–4 m. tall, flowers white); Nan-to, May 1900 (Veitch Exped. No. 794); Patung Hsien, June 1900 (Veitch Exped. No. 1000); without locality (Veitch Exped. No. 964); *A. Henry* (Nos. 5599[a], 6268). Kiangsi: foot-hills below Kuling, alt. 300 m., August 1907 (No. **1672**; tree 6 m. tall, very bushy). Szech'uan: North Wushan, *A. Henry* (No. 7095).

Very common as a small slender tree in woods and copses. The leaves vary considerably in size and shape and the inflorescence is also variable in size. The branches, inflorescence and flowers are always glabrous. The Kiangsi specimen has very prominent veins and the leaves are almost subglaucous below. A photograph of *P. Beauverdiana* will be found under No. 580 of Wilson's photographs and also in his *Vegetation of Western China*, No. 334.

Photinia Beauverdiana, var. **notabilis** Rehder & Wilson, n. comb.

Photinia notabilis Schneider, *Ill. Handb. Laubholzk.* I. 711, (1906).

Western Hupeh: without locality, May 1900 (Veitch Exped. No. **359**, type); Changyang Hsien, woods, alt. 1300 m., October 1907 (No. **468**; thin tree 6 m. tall, fruit orange-red); Fang Hsien, alt. 1300–2000 m., November 1907 (No. **629**; thin tree 6 m. tall, fruits red); Hsing-shan Hsien, woods, alt. 1300–1600 m., June 1907 (No. **2969**; thin flat-topped tree 10 m. tall, flowers white); Chang-lo Hsien, woods, alt. 1000–1500 m., May and July 1907 (No. **2973**, in part; tree 6 m. tall, flowers white).

This variety has rather thicker, more prominently veined leaves and longer corymbs than the type, but with the mass of material before us we cannot maintain it as a distinct species. The leaves on our specimens measure, excluding the petiole, 9–12 cm. Schneider cites for this variety leaves 9–13 cm. long; otherwise our specimens fit his description exactly.

Photinia Schneideriana Rehder & Wilson, n. sp.

Arbor circiter 6-metralis, gracilis; ramuli hornotini laxe villosi, demum glabrescentes, annotini glabri, purpureo-fusci, vetustiores grisei, lenticellati; gemmae ovoideae, acutiusculae, atro-brunneae, glabrae. Folia decidua, membranacea, oblongo-lanceolata, rarius oblongo-elliptica, longe acuminata, basi late cuneata, 6–11 cm., plerumque 8–9 cm. longa et 2–5.5 cm., plerumque 3–3.5 cm. lata, supra luteo-viridia, initio sparse villosula, mox glabra, subtus pallidiora, tomento laxo villoso facile detergendo sed ad maturitatem persistente obtecta, nervis utrinsecus 10–15 utrinque leviter elevatis; petioli 6–10 mm. longi, initio villosi, demum glabri. Corymbus terminalis, multiflorus, 5–7 cm. diam., laxe et sparse villosus; axes secundarii graciliter pedunculati, 3–9-flori; pedicelli 3–8 mm. longi, glabri, fructiferi verrucosi; calycis tubus turbinatus, 2–2.5 mm. longus et 4 mm. diam., glaber, nigrescens (in sicco), dentes erecto-patentes, semiorbicularia, mucronulati, circiter 1 mm. longi, intus sursum pilosus; petala patentia, suborbicularia, 4–4.5 mm. longa et 3.5–4 mm. lata, apice rotundata, basi brevissime unguiculata, glabra; stamina 20, petalis subaequilonga; ovarium semisuperum, apice villosum; styli 2–3, triente superiore excepta connati, glabri. Fructus ovoideus, 10 mm. longus et 8 mm. diam., scarlatinus, glaber, dentibus persistentibus suberectis v. plus minus incurvis coronatus; semina plerumque 2–3, ovoidea, 5–6 mm. longa, utrinque acutiuscula, obscure brunnea.

Western Hupeh: Changyang Hsien, woodlands, alt. 1300–1600

m., May and October 1907 (No. **476**, type); Chang-lo Hsien, woods, alt. 1000–1500 m., May 1907 (No. **2973** in part, flowers only).

Allied to *Photinia Beauverdiana* Schneider, which has glabrous shoots, differently shaped leaves, puberulent below and glabrous above, and slenderer peduncles and pedicels.

Photinia parvifolia Schneider *Ill. Handb. Laubholzk.* I. 711, fig. 392 o–o′ (1906).

Pourthiaea parvifolia Pritzel in *Bot. Jahrb.* XXIX 389 (1900).

Western Hupeh: *A. Henry* (No. 5830, type number, in part); north and south of Ichang, thickets, alt. 1000–1600 m., May and October (No. **445**; bush 5–2 m. tall, flowers white, fruit red); Patung, June 1900 (Veitch Exped. No. 1001). Szech'uan: South Wushan, *A. Henry* (No. 5517); Nan-ch'uan, Tao-kuo-kow, *A. von Rosthorn* (No. 211).

Photinia subumbellata Rehder & Wilson, n. sp.

Frutex 1–3-metralis ramis gracilibus; ramuli glabri, fusco-rubri, vetustiores grisei, lenticellati; gemmae ovoideae, acutae, 3–4 mm. longae, obscure castaneae. Folia decidua, membranacea, brevissime petiolata, elliptico-ovata v. rhombico-ovata, acuminata, saepe subito, basi late cuneata v. fere rotundata, 4–6.5 cm. longa et 2-3.5 cm. lata, argute serrulata, supra initio sparsissime villosa, laete viridia nitidula, subtus pallidiora v. glaucescentia, glabra; petioli 1–2 mm. longi. Racemus umbelliformis sessilis, 2–9-florus, in apice ramulorum brevium lateralium basi foliis 2–3 approximatis sustentus; pedicelli graciles 1–2.5 cm. longi, lenticellati, glabri; calycis tubus turbinatus, circiter 3 mm. longus, glaber, nitidulus, dentes patentes, late ovati, mucronati, circiter 1.5 mm. longi, intus sursum sparse pilosi; petala patentia, orbicularia, 5–6 mm. diam., brevissime unguiculata, apice rotundata, intus ad basin sparse pilosa; stamina 20, petalis triente breviora; ovarium semisuperum, apice dense villosum; styli 2–3, triente superiore excepta connati, apice divergentes, circiter 5 mm. longi, stamina paullo superantes. Fructus ellipsoideus, 9–12 mm. longus et 7–9 mm. diam., aurantiaco-ruber v. obscure ruber, purpureo-pruinosus, sepalis persistentibus suberectis coronatus; semina plerumque 2–3, ovoidea, acutiuscula, basi quasi stipitata et curvata, obscure brunnea.

Western Hupeh; Changyang Hsien, alt. 1300 m., May and October 1907 (No. **488**, type); Hsing-shan Hsien, side of stream, alt. 1600–2000 m., October 1907 (No. **398**); without precise locality, *A. Henry*

(Nos. 4064, 6370, 7664). Szech'uan: *A. Henry* (No. 5518). Kiangsi: Kuling, side of streams, alt. 800–1300 m., July and August 1907 (Nos. **1664, 1673**).

A well-marked species easily recognized by its sub-umbellate inflorescence subtended by 2 to 3 crowded subsessile leaves, and by the comparatively large flowers on slender glabrous pedicels.

Photinia amphidoxa Rehder & Wilson, n. comb.

Stranvaesia amphidoxa Schneider in *Bull. Herb. Boiss.* sér. 2, VI. 319 (1906); *Ill. Handb. Laubholzk.* I. 713, fig. 394 k–l (1906).

Szech'uan: *A. Henry* (Nos. 5565, type, 5565[a], 7389). Western Hupeh: Changyang Hsien, alt. 1000–1500 m., June and October 1907 (No. **405**; bush 2–3 m. tall, flowers white, fruit scarlet); Changyang Hsien, woodlands, 1000–1300 m., May and October 1907 (No. **465**, flowering branch only; bush 3 m. tall, flowers white); without locality (Veitch Exped. No. 714, fruiting branch only).

Schneider placed this species into *Stranvaesia* probably on account of its five styles, but neither the number of styles nor the greater or lesser degree of union between the back of the carpels and the calyx-tube can be made a character of generic distinction between the genera of the Pomaceae. The fruit seems to us to agree exactly with that of the section *Pourthiaea* of *Photinia* except in the complete union of the carpels to the calyx. It has the same granulose flesh, thin papery walls, not separating or splitting and no central cavity, at least we have not been able to detect in the fruit or in the young ovary the free central space as found in *Stranvaesia*. In the scarlet color of the fruit and the rugulose or verruculose epidermis it agrees also with *Photinia*, while *Stranvaesia* has an orange-red or coral-red fruit with smooth epidermis. Schneider refers to this species a fruiting specimen collected by A. von Rosthorn, and gives the measurements of the fruit as 9:8 mm., but in our specimens the fruits measure about 14 mm. in diameter; they are subglobose, dark scarlet, very sparingly villose or nearly glabrous except at the apex; the persistent calyx-teeth are incurved; the apex of the core is villose and almost flat; the granulose mesocarp does not separate clearly from the endocarp, which is 5-celled with thin papery walls; the seeds are about 6 mm. long, oblong-obovate, narrowed at both ends, particularly at the almost stipitate and slightly curved base.

Here may be added the description of three new species based on material of other collections than those of the Arnold Arboretum Expedition.

Photinia glomerata Rehder & Wilson, n. sp.

Arbor 6–10-metralis; ramuli hornotini villoso-tomentosi, annotini glabri, purpureo-fusci; gemmae obtusae, 1–2 mm. longae, pubescentes. Folia subcoriacea, decidua, anguste oblonga v. oblongo-oblanceolata, breviter saepe subito acuminata, basi cuneata saepe obliqua, 12–18 cm. longa et 5.5–6 cm. lata, margine leviter revoluta, serrulata serraturis glanduliferis, supra luteo-viridia, glabra costa media initio villosula excepta, subtus pallidiora, ad costam tantum villosa demum glabra v. fere glabra, costa supra immersa, nervis utrinsecus 12–18 subtus elevatis ut costa; petioli 2–3 cm. longi, adpresse villosi. Corymbus terminalis, 6–10 cm. diam., dense villoso-tomentosus, bracteis bracteolisque lanceolatis villosis 3–5 mm

longis caducis; axes secundarii paniculiformes, pedunculo quam panicula breviore, floribus parvis subsessilibus glomerulatis; flores circiter 4 mm. diam., albi, fragrantes; calycis tubus turbinatus, 1 mm. longus et 2 mm. diam. villosus, dentes erecti, minuti, acutiusculi, extus villosi; petala patentia, concava, orbicularia, 2–2.5 mm. diam., apice rotundata, basi breviter unguiculata, intus basin versus sparse villosa; stamina 20, petalis subaequilonga; ovarium semisuperum, apice dense villosum; styli 2, stamina fere aequantes, glabri basi villosa excepta, inde a medio connati, stigmate applanato. Fructus ruber, ovoideus, 5–7 mm. longus, sepalis persistentibus incurvis, apice applanatus et basi villosulus; semina ovoidea, 2.5–3 mm. longa, acutiuscula, obscure brunnea.

Yunnan: forests around Szemao, alt. 1500–1600 m., *A. Henry* (Nos. 11716, flowers, 11716 a, fruits).

A very handsome species well characterized by its nearly sessile clustered flowers and allied to *Photinia Griffithii* Decaisne, which has different foliage and inflorescence, pedicellate flowers, obovate petals and pubescent styles.

Photinia lancifolia Rehder & Wilson, n. sp.

Frutex 2–3-metralis ramis gracilibus; ramuli hornotini laxe adpresse villosi, mox glabrescentes, annotini glabri, fusco-purpurei, lenticellati; gemmae ovoideae, acutiusculae, 2–3 mm. longae. Folia decidua, demum subcoriacea, oblongo-lanceolata v. anguste oblongo-lanceolata, rarius oblonga, acuminata, rarius acuta, basi anguste cuneata, 5–9 cm., plerumque 6–8 cm. longa et 1.5–2.8 cm. lata, adpresse argute serrulata basi excepta, dentibus minute mucronulatis, supra laete viridia, nitidula, glabra v. initio ad partem inferiorem sparse villosa, subtus pallidiora, glabra parte inferiore costae initio sparse villosa excepta, nervis utrinsecus 8–10 subtus ut costa elevatis; petioli 4–8 mm. plerumque 5 mm. longi, initio villosi, demum glabri. Cormybus terminalis satis densus, 2.5–4 cm. diam., villosus, bracteis bracteolisque membranaceis lanceolatis; 3–6 mm. longis caducis; axes secundarii plerumque 3-flori, pedunculo 0.5–1.5 cm. longo, infimi saepe subverticillati; pedicelli 3–5 mm. longi, fructiferi verruculosi, glabri; flores albi, 1.2–1.5 cm. diam., calycis tubus turbinatus, 3 mm. longus latusque, villosus, dentes erecti, late triangulares, plerumque mucronati, circiter 1 mm. longi, extus villosi, intus glabri; petala patentia, orbicularia, concava, 5 mm. diam., apice rotundata plerumque leviter emarginata, basi breviter unguiculata, rarius late cuneata, glabra; stamina 20, petalis breviora; ovarium semisuperum, apice dense villosum; styli 3, liberi v. basin versus connati. Fructus subglobosus, 6–8 mm. longus, glaber, sepalis persistentibus incurvis; semina plerumque 2, ovoidea, utrinque plus minusve acutiuscula, circiter 5 mm. longa, obscure brunnea.

Yunnan: near Meng-lieh, alt. 1100 m., *A. Henry* (No. 12833, type); Szemao, alt. 1300 m., *A. Henry* (No. 13412).

A well-marked species with characteristic willow-like leaves glabrous even when very young. It is most closely allied to the Indian *Photinia arguta* Decaisne, but differs in many respects from all the forms of this variable species.

Photinia berberidifolia Rehder & Wilson, n. sp.

Frutex 60 cm. altus; ramuli hornotini dense adpresse villosuli, annotini glabri epidermate opaco cinereo decorticante et corticem purpureo-fuscum detegente. Folia persistentia, coriacea, approximata, obovata v. oblongo-obovata, acuta, interdum rotundata, basi cuneata, 2–5 cm. longa et 1–2 cm. lata, spinoso-serrata dentibus patenti-erectis utrinque 8–15 glandula minuta brunnea terminatis, margine leviter revoluta, supra laete viridia, glabra, nitentia, subtus pallidiora dense adpresse villosa, secundo anno fere glabra, nervis utrinsecus 6–10 fere rectis plerumque in dentes exeuntibus supra leviter immersis subtus elevatis ut costa; petioli

2.5–4 mm. longi, villosi, demum glabri; stipulae lineari-lanceolatae, petiolum fere aequantes, utrinque plerumque dentibus 2–4 adpressis. Corymbus terminalis, leviter convexus v. fere planus, 2.5–3 cm. diam., axibus subangularibus villosis, bracteis bracteolisque persistentibus lineari-lanceolatis plerumque pauciserratis dentibus ut apex glandula brunnea terminatis, inferioribus plerumque foliaceis, glabrescentibus; axes secundarii 3–1-flori; pedicelli 2–5 mm. longi; flores albi, 9–10 mm. diam.; calycis tubus turbinatus, 3 mm. diam., extus sparse villosus, dentes suberecti, late ovati, obtusi, glandula brunnea mucronati, rarius dentibus minutis paucis instructi, intus glabri, extus sparse villosi v. glabri; petala patentia, suborbicularia, plerumque leviter emarginata, 3.5 mm. diam.; stamina 20, petalis fere dimidio breviora; ovarium semisuperum apice dense villoso, biloculare; styli 2, connati ad medium usque villosi, staminibus paullo breviores. Fructus desiderantur.

A very distinct species which seems nearest to *Eriobotrya prionophylla* Franchet. In general appearance it greatly differs from all other Photinias. The leaves particularly by their venation recall those of Eriobotrya, but are much smaller, and the inflorescence bears some slight resemblance to that of Raphiolepis. It may not belong to Photinia at all, but as long as the fruit is unknown, it may provisionally find its place here, as it agrees in the structure of its flower perfectly with Photinia.

Western Szech'uan: Tung Valley, very rare, May 1904 (Veitch Exped. No. 3508).

STRANVAESIA Lindl.

Determined by ALFRED REHDER AND E. H. WILSON.

Stranvaesia Davidiana Decaisne in *Nouv. Arch. Mus. Paris*, X. 179 (1874).

Stranvaesia Henryi Diels in *Bot. Jahrb.* XXXVI. 52 (1905).

Western Szech'uan; Pan-lan-shan, west of Kuan Hsien, cliffs, alt. 2300 m., June and October (No. **1064**; bush 1.25–3 m. tall, flowers white, fruit scarlet); Mount Omei, October 1903 (Veitch Exped. No. 3505; bush 1–3.5 m. tall); Mount Omei, June 1904 (Veitch Exped. No. 4872; bush 6 m. tall).

Number 3505 agrees exactly with Diels' description of his *S. Henryi*, but with the several specimens before us we are unable to separate it from *S. Davidiana* Decaisne. Here also probably belongs Henry's No. 11,325 from Yunnan, which has thinner and broader leaves than the type and longer petioles.

Stranvaesia Davidiana, var. **undulata**, Rehder & Wilson, n. comb.

Stranvaesia undulata Decaisne in *Nouv. Arch. Mus. Paris*, X. 179 (1874). — Hemsley in *Jour. Linn. Soc.* XXIII. 264 (1887). — Schneider, *Ill. Handb. Laubholzk.* I. 713, fig. 394 f–i (1906). — Stapf in *Bot. Mag.* CXXXVIII. t. 8418, (1912).

Western Hupeh: north and south of Ichang, thickets, alt. 1300–2000 m., July and October (No. **382**; bush 2–4 m. tall, flowers white, fruit coral-red): Pao-kang Hsien, August 1901 (Veitch Exped. No. 1067). Szech'uan: South Wushan, *A. Henry* (No. 5698).

An exceedingly common shrub in Hupeh and very variable. It is distinguished from the type by its usually much smaller leaves and nearly glabrous flowers, but some specimens before us have leaves nearly as large as those of the type and are only slightly less hairy; it seems questionable whether the form is entitled even to varietal rank.

Here may be added the description of a new variety from Yunnan of *Stranvaesia nussia* Decaisne (*S. glaucescens* Lindley).

Stranvaesia nussia, var. **oblanceolata** Rehder & Wilson, n. var.

A typo recedit foliis longis petiolatis angustioribus et longioribus, plerumque oblanceolatis v. oblongo-oblanceolatis 8–15 cm. longis et 2–4.5 cm. latis, inflorescentiis plerumque laxioribus glabris, calyce glabro rarius sparse floccoso-villosulo.

Yunnan: forests around Szemao, alt. 1500–1600 m., *A. Henry* (Nos. 11615, 11615 a, 11615 b, 11615 e, 11615 f).

This variety seems to resemble in the shape of its leaves *S. nussia*, var. *angustifolia* (Decaisne) Schneider, which we have not seen, but which we must assume has a villose inflorescence, as Decaisne gives the narrower leaves as the only distinguishing character.

ERIOBOTRYA Lindl.

Determined by Alfred Rehder and E. H. Wilson.

Eriobotrya japonica Lindley in *Trans. Linn. Soc.* XIII. 102 (1821). — Siebold & Zuccarini, *Fl. Jap.* I. 182, t. 97 (1835).

Mespilus japonica Thunberg, *Fl. Jap.* 206 (1784). — Ker in *Bot. Reg.* V. t. 365 (1819).
Crataegus Bibas Loureiro, *Fl. Cochin.* 319 (1790).
Photinia japonica Franchet & Savatier, *Fl. Jap.* I. 142 (1875).

Western Hupeh: north and south of Ichang, alt. 300–1000 m., April and November (No. 3000; tree 5–6 m. tall, flowers white, fragrant, fruit orange); without locality, *A. Henry* (No. 5343).

Very generally cultivated throughout Hupeh and Szech'uan, also spontaneous on the cliffs around Ichang.

The fruit of *E. japonica* is figured by Decaisne without calyx and described as umbilicate at the apex; Schneider also states that the calyx is deciduous and figures the fruit exactly as Decaisne does. We find in our specimens a persistent calyx with incurved teeth which agrees with the figures quoted above and with other figures we have seen. Also the other species of this genus have, as far as we have seen fruits, a persistent calyx.

Eriobotrya grandiflora Rehder & Wilson, n. sp.

Arbor parva, 6–metralis ramis robustis; ramuli hornotini dense tomento rufo ad secundum annum persistente obtecti, vetustiores obscure griseo-fusci. Folia persistentia, coriacea, oblonga, rarius oblongo-oblanceolata, plerumque apice rotundata et subito in acumen brevissimum producta, rarius breviter acuminata, basi cuneata, 10–16

cm. longa et 3.5–5.5 cm. lata, margine revoluta, remote adpresse serrata dentibus incurvis glandula conica terminatis, initio floccoso-tomentosa, cito utrinque glabra, luteo-viridia, subconcoloria, utrinque nitentia, supra elevato-reticulata, nervis utrinsecus 10–12 fere rectis in dentes exeuntibus subtus elevatis trabeculis leviter elevatis conjunctis; petioli 2.5–4 cm. longi, sursum lamina decurrente alati, initio floccoso-tomentosi, mox glabri. Panicula terminalis cum pedunculo 1–3 cm. longo 10–12 cm. longa et 6–8 cm. diam., rufo-tomentosa, bracteis bracteolisque lanceolatis 4–6 mm. longis tomentosis caducis; axes secundarii inferiores racemosi 8–3-flori, superiores uniflori; pedicelli 0.6–12 mm. longi; flores albi, 2–2.5 cm. diam., fragrantes; calyx late turbinatus, 6–7 mm. diam., dense tomentosus, dentes late triangulares, acutiusculi, apice curvi, circiter 2 mm. longi, intus glabri, extus tomentosi; petala in vernatione contorta, orbicularia v. obovato-orbicularia, 7–9 mm. longa et 6–8 mm. lata, manifeste emarginata, basi subito contracta et glabra v. fere glabra; stamina 20, petalis dimidio breviora; ovarium totum inferum, apice glabrum; styli 3, ad medium usque connati et villosi, sursum glabri. Fructus subglobosus, circiter 2.5 cm. diam., aurantiaco-ruber, glaber, calycis dentibus persistentibus suberectis coronatus; semina 1–2, ovoidea v. oblongo-ovoidea, 8–15 mm. longa, utrinque obtusa, testa tenui papyracea, cotyledonibus crassis.

Western Szech'uan: without precise locality, alt. 1600 m., May 1904 (Veitch Exped. No. 3506, type); Mupin, alt. 1300 m., October, 1908 (No. **2999**).

A very distinct species characterized by its large flowers on long pedicels, three styles and large, globose, glabrous fruit. In its three styles it differs from all other known species except the totally different *Eriobotrya angustissima* Hooker f.

The description of another new species from Yunnan and western Szech'uan may be added here.

Eriobotrya prinoides Rehder & Wilson, n. sp.

Eriobotrya bengalensis Dunn in *Jour. Linn. Soc.* XXXIX. 446 (non Hooker f.) (1911).

Arbor 5–8-metralis; ramuli hornotini sparse tomentosuli, annotini purpureo-fusci, vetustiores griseo-fusci. Folia persistentia coriacea, oblongo-elliptica, rarius ovalia, acuta, rarius obtusa v. subito breviter acuminata, basi cuneata, 8–12 cm. longa et 3.5–6.5 cm. lata, remote sinuato-serrata basi excepta dentibus incurvis, supra laete viridia, initio villosula, cito glaberrima, nitentia, subtus dense adpresse cinereo-tomentulosa, nervis utrinsecus 10–12 fere rectis partim in dentes exeuntibus subtus elevatis glabrescentibus ut costa; petioli 1.5–2 cm. longi, initio tomentulosi, demum glabri. Panicula terminalis, lata, 6–10 cm. longa et 8–12 cm. diam., fusco-cinereo-tomentulosa, bracteis bracteolisque ovatis, 3–4 mm. longis caducis; axes secundarii racemosi, infimi 4–6 cm. longi, superiores uniflori; pedi-

celli 2–5 mm. longi; flores albi, 1–1.5 cm. diam.; calycis tubus turbinatus, 3 mm. diam., rufo-villosus, dentes oblongo-ovati, obtusi, 2 mm. longi, reflexi, extus rufo-villosi, intus glabri; petala in vernatione contorta, ovalia, 4–5 mm. longa, profunde emarginata, brevissime unguiculata, intus ad basin villosa; stamina 20, petalis triente breviora; ovarium semisuperum, apice dense villosum; styli 2, rarius 3, ad medium fere connati v. fere liberi, staminibus dimidio breviores, glabri. Fructus ovoideus, 9–10 mm. longus et 6–7 mm. diam., apice applanatus dentibus calycis persistentibus incurvis, villosulus; semen plerumque solitarium, ovoideum, utrinque obtusum, 7–8 mm. longum, obscure brunneum, cotyledonibus crassis.

Yunnan: Mengtze, alt. 1500 m., *A. Henry* (No. 9878, type). Western Szech'uan: Tung Valley, on cliffs, alt. 800 m., May 1904 (Veitch Exped. No. 3507).

A well-defined species with leaves which recall those of *Quercus Prinos* Linnaeus. In the shape and serration of the leaves it resembles *E. bengalensis* Hooker f., which is easily distinguished by the glabrous lower surface of the leaves. From *E. japonica* Lindley and *E. grandiflora* it differs distinctly in the structure of its ovary which is adnate to the calyx-tube only in the lower half, the upper free part being densely villose, while in the former two species the ovary is entirely inferior and glabrous at the apex. The presence of two or three styles nearly free or confluent to above the middle is interesting and further proves the instability of this character in the genus.

AMELANCHIER Med.

Determined by E. H. Wilson.

Amelanchier asiatica Endlicher in Walpers, *Rep.* II. 55 (1843).

Aronia asiatica Siebold & Zuccarini, *Fl. Jap.* I. 87, t. 42 (1835).
Amelanchier canadensis, var. *japonica* Miquel in *Ann. Mus. Lugd.-Bat.* III. 41 (1867); *Prol. Fl. Jap.* 229 (1867).
Amelanchier japonica Hort. ex K. Koch, *Dendr.* I. 179 (synon.) (1869).

The type is restricted to Japan, Korea and perhaps Mandshuria; it does not occur in China proper.

Amelanchier asiatica, var. **sinica** Schneider, *Ill. Handb. Laubholz.* I. 736, fig. 410 i–i′, 412 c–d (1906).

Amelanchier asiatica Pritzel in *Bot. Jahrb.* XXIX. 389 (1900).

Western Hupeh: Hsing-shan Hsien, woodlands, alt. 1000–2000 m., May and September 1907 (No. **293**; small tree 3–6 m. tall, flowers white, fruit black, bark smooth, grey); Chang-lo Hsien, woodlands, alt. 1000–1800 m., May 1907 (No. **2815**; bush or much-branched tree, 2–6 m. tall, flowers white): Fang Hsien, thickets, alt. 1300–2000 m., May 1907 (No. **2816**; bush or small tree, 2–8 m. tall, flowers white); Chien-shi Hsien, May 1900 (Veitch Exped. No. 515). Eastern Szech'uan: South Wushan, *A. Henry* (No. 5521).

In this variety the leaves vary considerably in size and somewhat in shape; some are entire and others very distinctly serrate with the serrations restricted to

the upper half of the leaf. It is much less hairy than the type and quickly becomes glabrous.

This *Amelanchier* is one of the commonest and most beautiful of the small trees in the thickets and thin woods of western Hupeh.

PRUNUS L.

Determined by E. KOEHNE.

Subgen. PADUS.

For the species of this subgenus collected by Mr. Wilson and a key to all the Chinese species, see pp. 59–75. It remains only to add here the determinations of the specimens of *Padus* collected by Mr. Wilson during his journey of 1910.[1]

Prunus pubigera Koehne, var. **Potanini** Koehne in Sargent, *Pl. Wilson.* 68 (1911).

Western Szech'uan: southeast of Tachien-lu, woods, alt. 3000–3300 m., October 1910 (No. **4133**, tree 23–27 m. high, 2 m. circumference, pendulous racemes).

As I have not seen foliiferous shoots I have some doubt whether No. 4133 really belongs to this variety.

Prunus pubigera, var. **obovata** Koehne, l. c. (1911).

Western Szech'uan: Pan-lan-shan, west of Kuan Hsien, woodlands, alt. 3000–3300 m., August 1910 (No. **4036**, tree 14–16 m. high, 1.6–2 m. circumference); west and near Wên-ch'uan Hsien, woods, alt. 2300–2800 m., September 1910 (No. **4185**, tree 7–12 m. high, 1–1.3 m. circumference).

Prunus sericea Koehne, l. c. 63 (1911).

Western Szech'uan: Mupin, woods, alt. 1600–2000 m., October, 1910 (No. **4219**, tree 14 m. high, 1.6 m. circumference).

[1] Here may also be added the description of a new form collected by Mr. Purdom.

Prunus Padus Linnaeus, var. **pubescens** Regel, f. **Purdomii** Koehne, n. f.

Ramuli novelli tomento molli cinerascentes, vetustiores plus minus glabrati. Petioli dense pubescentes cinerascentes, lamina subtus cinereo-tomentosa. Racemi pedunculus minutim puberulo-velutinus, axis ipse glaberrimus.

Northern Chili: Weichang, May 26, 1909, *Wm. Purdom* (No. 15).

This form is remarkable for the tomentose lower surface of all the leaves, while the axis of the raceme is quite glabrous.

Subgen. CERASUS.

Prunus pulchella Koehne, n. sp.

Frutex 2-metralis; rami juveniles striguloso-canescentes, praeterea hinc vel undique subaccumbenti-hirti, annotini glabri v. subglabri, pallide cani vel fuscescenti-cani; gemmae 2.5 mm. longae, subglobosae, glabrae. Stipulae 3–5 mm. longae, oblongae v. lanceolatae, glanduloso-denticulatae, sub anthesi persistentes; petioli 4–7 mm. longi, lanuginoso-villosi, glandulis 1–2 eorundem apici v. laminae basi insidentibus; lamina e basi emarginata v. rotundata ovata v. obovata, sub anthesi 2–5 cm. longa, 1.3–2.5 cm. lata, subito v. caudato-acuminata, duplicato-, basi apiceque simpliciter serrata dentibus subito tenere acuminatis glandula minutissima terminatis, supra laxissime strigulosa, subtus in costa nervisque dense, ceterum sparsim pilis rigidulis brevibus obsita, nervis utrinsecus circiter 7–9, laete viridis, subtus vix pallidior, tenuiter membranacea. Involucrum ante anthesin deciduum; pedunculi 2.5–4 cm. longi, pilosi; racemi absque pedunculo 5–6 cm. longi, coaetanei; axis molliter villosus; bracteae circiter 5–6, infima plerumque sterilis, 10–13 mm. longa, ovata, ceterae fertiles 3–7 mm. longae, omnes serratae dentibus glandula depresso-capitata parva terminatis; flores 4–5-racemosi, supremis 2 tantum umbellatis; pedicelli 16–27 mm. longi, laxe villosi v. superne glabri; cupula 3 mm. longa, breviter lateque campanulata, glabra; sepala reflexa, oblonga, 2.5 mm. longa, acutiuscula, integra, glabra; petala late ovata, 6.5 mm. longa, 5 mm. lata, vix eroso-denticulata, glabra, rosea; stamina 25, petalis subaequilonga, ad 7 mm. longa; pistillum 12 mm. longum; stylus staminibus 1–2 mm. longior, usque ad medium longe villosus. Drupa ignota.

Western Hupeh: Hsing-shan Hsien, roadsides, rare, alt. 1300–1700 m., May 10, 1907 (No. 2827).

This species is allied to *P. Maximowiczii* Ruprecht, but is readily distinguished from it by the glabrous cupula and petals.

Prunus conadenia Koehne, n. sp.

Arbor v. frutex arborescens, 6–10-metralis; truncus 30 cm. diam.; rami glaberrimi, hornotini demum castanei, vetustiores fusci v. canescentes; gemmae 3 mm. longae, glabrae. Stipulae circiter 3–4 mm. longae, herbaceae, glanduloso-serratae, mense julio deciduae. Petioli demum 12–18 mm. longi, glabri, glandulis saepe 2 v. pluribus petioli apici v. laminae basi insidentibus, validis; lamina e basi cordata v.

rotundata v. in foliis nonnullis subacuta obovata, 3.5–9 cm. longa, 2.4–4.8 cm. lata, caudato-acuminata, duplicato-, sed basi apiceque simpliciter serrata, dentibus obtusis subito breviter apiculatis, glandula magna insigni conica terminatis, infimis vero saepe in glandulam stipitatam commutatis, supra initio in costa nervisque densius, ceterum laxissime strigulosa, demum glabra v. subglabra, subtus glabra v. in costa pilis singulis rigidulis conspersa, nervis utrinsecus circiter 8–14, supra laete viridis, subtus vix pallidior, demum papyracea. Involucrum ante anthesin deciduum; pedunculus 0.5–1 cm. longus v. fructifer multo longior, glaber; racemi circiter 5–8-flori, sub anthesi absque pedunculo 2–3 cm., fructiferi 3.4–8 cm. longi; axis glaber; bracteae 7–10, infimis plerumque sterilibus, sub anthesi 2–5 mm., posterius 5–10 v. 5–20 mm. longae, rotundatae v. ovatae, supremae oblongae, denticulatae, denticulis glandula maxima conica terminatis, herbaceae; pedicelli 5–10 mm. longi, glabri; flores coaetanei foliis simul 2–4 cm. longis; cupula fere 4 mm. longa, 5 mm. lata, subsemiglobosa, glabra; sepala reflexa, triangularia, 3.5 mm. longa, acuta, parce glanduloso-denticulata, glabra; petala rotundato-ovalia, 6 mm. longa, 4.5 mm. lata, leviter eroso-denticulata, alba; stamina 27–28, petalis subaequilonga, ad 7 mm. longa; pistillum 8 mm. longum; stylus staminibus subbrevior, usque ad duas tertias partes laxe v. parcissime villosus. Drupa ovata, rubra; putamen oblique ovatum, 7:5:4 mm., juxta carinam complanatam manifeste oblique sulcatum, apice parce scrobiculatum.

Western Szech'uan: Tachien-lu, woods, alt. 2300–2600 m., June 1908 (No. **2823**); northeast of Tachien-lu, woodlands, alt. 2600 m., July 7, 1908 (No. **904**).

Prunus pleiocerasus Koehne, n. sp.

Arbor 3–8-metralis; rami hornotini glaberrimi, demum pallide cano-fuscescentes, vetustiores pallide cani v. nigricantes; gemmae 2.5–4 mm. longae, crasse ovatae. Stipulae oblique ovatae v. oblongae, 3–4 mm. longae, glanduloso-fimbriatae, herbaceae, mense julio plerae-que deciduae; petioli 10–18 mm. longi, glaberrimi, glandulis 1–4 petioli apici v. laminae basi insidentibus; lamina e basi rotundata v. acuta obovato-oblonga v. inverse oblonga, intermixtis nonnullis ovato-oblongis v. obovatis, 4–8.7 cm. longa, 2–3.5(–4) cm. lata, caudato-acuminata, inaequaliter sed vix duplicato-serrata, dentibus glandula parva conica terminatis, supra pilis minutis nitidis paucissimis con-spersa, dein glabra, subtus glabra v. in nervorum axillis paucis sub-

barbata, nervis utrinsecus 8–12, supra laete viridis, subtus paullo v. manifeste pallidior, demum papyracea. Involucrum ante anthesin deciduum; pedunculi 1–2 cm. longi, glabri; racemi absque pedunculo 2–5 cm. longi, axis glaber; flores (3–)4–7, coaetanei foliis simul 3.5–6 cm. longis; bracteae 4–8, infima saepe sterili, rotundatae, 3–7 mm. longae, denticulatae, dentibus glandula conica initio parva, demum magna terminatis, pedicelli 12–22 mm. longi, glabri; cupula 4 mm. longa lataque, glabra; sepala reflexa, triangularia, acutissima, 3 mm. longa, glanduloso-ciliolata ciliis utrinsecus circiter 2–4, ceterum glabra; petala rotundata, 6.5 mm. longa, 5.5 mm. lata, eroso-denticulata, alba; stamina 31, petalis subaequilonga, ad 6 mm. longa; pistillum 10 mm. longum; stylus staminibus vix longior, basi pilis paucis obsitus. Drupa globosa, circiter 10 mm. diam., rubra v. fere nigra; putamen rotundatum 6–7:6:5 mm., valide reticulato-sulcatum et scrobiculatum costis interdum haud anastomosantibus.

Western Szech'uan: west and near Wên-ch'uan Hsien, woods, alt. 2500 m., June and July 1908 (No. **904**[a]); Sung-pan, woodlands, alt. 2600–3000 m., August 1910 (No. **4013**); Nan-ch'uan, summer 1891, *A. von Rosthorn* (Nos. 149, 540, sterile); without locality, summer 1891, *A von Rosthorn* (No. 622, sterile).

This species differs from *P. conadenia* Koehne in the narrower leaves and the globular more strongly furrowed and pitted stones. In No. 904[a] the fruit is described on the label as dark red, and in No. 4013 as nearly black, but also in No. 4013 it appears to be dark red in the dried state. The really black fruits, as in. *P. pleuroptera* Koehne, are intensively black in the dried specimens.

Prunus macradenia Koehne, n. sp.

Arbor 6–10-metralis; rami glaberrimi, hornotini demum castanei, annotini fusco-cinerei v. cinerei; gemmae 2–2.5 mm. longae, ovatae, glabrae. Stipulae ignotae; petioli 8–14 mm. longi, glabri, plus minus purpurascentes; glandulae 1–2, laminae basi insertae; lamina e basi acuta v. rotundata ovata v. ovato-elliptica, 4.5–6.5 cm. longa, 2.2–3.5 cm. lata, subito caudata, simpliciter, media parte subduplicato-serrata, dentibus brevibus latiuscule triangularibus, glandulam validam fuscam triangularem gerentibus, supra laxiuscula strigulosa, subtus undique breviter hirtella, sed in costa haud raro glabra, nervis utrinsecus 6–12, supra laete viridis, subtus manifeste pallidior, adulta papyracea. Flores ignoti. Racemorum fructiferorum pedunculus 2–4 mm., axis ipse 13–16 mm. longus; bracteae 3–4, rotundatae v. obovatae, 2-5 mm. longae, glanduloso-dentatae, glandulis inferioribus parvulis, superioribus majoribus triangularibus; pedicelli 3–4, laxiuscule hir-

telli, 16–20 mm. longi. Drupa globosa, 9 mm. longa 9.5 mm. diam., fusco-rubra; putamen subrotundatum, 5.4:4.6:4 mm., juxta carinam planam et juxta suturam costulis brevibus horizontalibus v. subrecurvis munitum.

Western Szech'uan: Sungpan Ting, woods, alt. 3000 m., August 1910 (No. 4016).

This species resembles in its pubescence *P. pulchella* Koehne, but *P. pulchella* has longer racemes and the glands of the teeth of the leaf are very small. *Prunus pleiocerasus* Koehne and *P. conadenia* Koehne differ in being glabrous and in their longer racemes with more flowers. In its short racemes *P. macradenia* Koehne, somewhat approaches *P. tatsienensis* Batalin, which differs, however, in the 2(–4)-flowered umbels and in being glabrous.

Prunus discadenia Koehne, n. sp.

Frutex 4–6-metralis v. arbor 10–13-metralis; truncus 20–40 cm. diam.; rami hornotini glaberrimi, initio saepe saturate rubri, autumno fusci, vetustiores cinerei v. saturate fusco-cinerei; gemmae 3 mm. longae, glabrae. Stipulae oblongae v. lanceolatae, circiter 3–4 mm. longae, serratae ac glanduloso-fimbriolatae, herbaceae, persistentes; petioli 7–18 mm. longi, glabri, interdum saturate rubri, glandulis plerumque 2 petioli apici v. laminae basi insertis, validis; lamina e basi cordata v. rotundata v. rarius subacuta ovata, obovata v. interdum oblongo-obovata, 4–10 cm. longa, 2.5–5 cm. lata, acuminata v. caudata, inaequaliter serrata, dentibus glandula valida depresso-disciformi terminatis, glaberrima v. raro subtus in costa nervisque pilis conspersa, nervis utrinsecus circiter 8–10, pallidis, supra laete viridis, subtus vix pallidior, demum subcartilaginea. Involucri squamae 1–4 interiores sub anthesi interdum persistentes, saepe circiter 10–18 mm. longae; pedunculi 1–2 cm. longi, glabri; racemi absque pedunculo 3–6 cm. longi, axis glaber; flores 3–9, coaetanei, foliis simul ad 5–7 cm. longis; bracteae 4–9, infima saepe sterili, rotundatae ad ovato-oblongae, 8-10 mm. v. infimae ad 25 mm. longae, serratae dentibus glandula maxima depresso-disciformi terminatis; pedicelli 8–23 mm. longi, glabri; cupula 4–5.5 mm. longa lataque v. vix longior quam lata, glabra; sepala reflexa, triangularia acuta, cupulam aequantia v. sublongiora, brevissime glanduloso-fimbriolata, ceterum glabra; petala rotundata, 6–8 mm. longa lataque, eroso-denticulata, alba; stamina 40–47, petalis aequilonga v. sublongiora, majora 7–11 mm. longa; pistillum 11 mm. longum, stylus stamina aequans v. subbrevior, usque ad medium parce villosus. Drupa subglobosa, circiter 9 mm. longa, 7 mm. diam.,

rubra; putamen ovatum, 6:4:3.5 mm. v. 5.5:4:3.5 mm., sulcis paucis obsoletis juxta carinam planam.

Western Hupeh: Hsing-shan Hsien, woods, alt. 1800 m., 1907 (No. **62**, as to flowering branches; the fruiting branches belong to *P. laxiflora* Koehne), Hsing-shan Hsien, alt. 1300–2000 m., May 29 and July 1907 (No. **2832**); Wan-tiao-shan, Hsing-shan Hsien, alt. 2000–2600 m., June 5, 1907 (No. **2829**); Fang Hsien, woods, alt. 1600–2500 m., June 1 and August 1907 (No. **174**); Fang Hsien, July 1901 (Veitch Exped. No. 2075).

Prunus tatsienensis Batalin, var. **stenadenia** Koehne, n. var.

Arbor 6–10-metralis glaberrima; rami hornotini adulti intense fusci, annotini nigrescentes; gemmae 1.5–2 mm. longae. Stipulae anguste ovatae, 2–3 mm. longae glanduloso-dentatae, herbaceae; petioli 10–14 mm. longi, tenues, pallidi; glandulae 1–3, petioli apici v. laminae basi insertae; lamina e basi acuta v. obtusa v. vix unquam subcordata obovato-oblonga, in foliis nonnullis ovata v. obovata, 3.5–6 cm. longa, 2.2–3 cm. lata, subito caudata, simpliciter v. media parte subduplicato-serrata, dentibus glandulam validam conicam gerentibus, nervis utrinsecus 9–13, supra laete, subtus pallide viridis. Flores ignoti. Umbellae sub fructificationis tempore pedunculo 13–14 mm. longo insidentes; bracteae circiter 4, inferiores steriles, 5–8 mm. longae, late spathulatae, superiores 2 fertiles 2-3 mm. longae, omnes glanduloso-dentatae, glandulis anguste oblongis; pedicelli gemini, 13–19 mm. longi. Drupa globosa, 11 mm. longa, 10 mm. diam., fusco-rubra; putamen rotundatum, 6.5:5.5:4.8 mm., juxta carinam planam atque suturam costulis nonnullis brevibus obliquis parum anastomosantibus.

Western Szech'uan: Pan-lan-shan, west of Kuan Hsien, woodlands, alt. 2300–3000 m., August 1910 (No. **4039**).

I am not sure whether this form can be referred to *P. tatsienensis*, as this species bears on the teeth of the bracts very thick, depressed and disk-like glands. Moreover as only flowering branches are known of *P. tatsienensis* it is impossible to compare the flowers and fruits of these two forms.

Prunus variabilis Koehne, n. sp.

Arbor v. frutex arborescens, 3.3–8 m. altus; ramuli novelli nunc glabri nunc basi nunc toti sericeo-hirti v. hinc glabri, demum glabrescentes, vetustiores glabri, pallide v. nigrescenti- v. fuscescenti-cinerei; gemmae 1–2 mm. longae, glabrae. Stipulae oblique ovatae ad lanceolatae, 4–11 mm. longae, glanduloso-serratae v. -fimbriatae, glandulis capitatis, herbaceae; petioli 5–12 mm. longi, parce rigidulo-villosi,

glandulis plerumque laminae basi, raro petioli apici insertis; lamina e basi emarginata v. rotundata v. rarius subacuta obovata, intermixtis rotundatis v. ovatis v. inverse oblongis, 2–9 cm. longa, 1.5–4. cm. lata, subito acuminata, simpliciter ac duplicato-serrata, dentibus cuspidatis, glandula minutissima terminatis, supra in costa tenere pilosa ceterum glabra v. parce strigulosa, subtus in nervorum axillis plus minus barbata ceterum glabra, nervis utrinsecus circiter 7–10, laete viridis, subtus subconcolor, demum papyracea v. membranacea. Involucra sub anthesi omnia v. pleraque decidua; pedunculus 4–22 mm. longus, pilosus; flores (1–)2–3(–4) umbellati v. subumbellati, floribus 1–2 infimis subremotis, coaetanei foliis simul 2–5 cm. longis; bracteae 2–5, rotundatae ad oblongae, infima saepissime sterilis ac major, 5–16 mm. longa, sequentes 3–8(–12) mm. longae, glanduloso-serratae, glandulis parvis capitatis v. conicis, herbaceae, persistentes; pedicelli 10–27 mm., fructiferi interdum ad 48 mm. longi, glabri v. superne v. toti parce villosi; cupula 3.5–4 mm. longa, breviter lateque campanulata, glabra; sepala reflexa, triangularia obtusa v. acuta, 2.5–3.5 mm. longa, integra v. vix denticulata, glabra v. apice breviter tenere ciliata; petala ovata v. rotundata, 7.5–9 mm. longa, 5–8 mm. lata, integra v. apice leviter crenulata, alba v. rosea; stamina 24–25, petalis subaequilonga, majora 7–9 mm. longa; pistillum 12–14 mm. longum; stylus usque ad medium villosus, staminibus sublongior. Drupa ovalis v. ovali-rotundata, circiter 11–12 mm. longa, 7–10 mm. lata, rubra; putamen late obovatum v. rotundato-ovale, 9:7.5:6 mm., laevissimum.

Western Hupeh: Chang-lo Hsien, thickets, alt. 1300–1600 m., May and June 1907 (No. **64**): Hsing-shan Hsien, woods, not common, alt. 1300–1600 m., May 7, 1907 (No. **2830**); Hsing-shan Hsien, alt. 1000–1300 m., May 7, 1907 (No. **2828**).

Prunus variabilis can hardly be distinguished without fruits from *P. pilosiuscula* Koehne, which is characterized by remarkably narrow and distinctly furrowed stones. It is equally difficult to distinguish from *P. Rehderiana* Koehne, *P. venusta* Koehne and *P. litigiosa* Schneider, the stones of which are still unknown.

Prunus pilosiuscula Koehne, n. sp.

Prunus tatsienensis, var. *pilosiuscula* Schneider in Fedde, *Rep. Nov. Sp.* I. 66 (1905).

Frutex 5-metralis v. arbor 5–13-metralis; truncus 20–40 cm. diam.; rami hornotini glabri v. hinc parce v. densius rigidulo-pilosi v. praeterea basi undique brevissime hirtelli, annotini glabri, vetustiores

cinerei; gemmae ad 2 mm. longae, glabrae. Stipulae oblique oblongae v. angustissime lineares, 5–8 mm. longae, glanduloso-serratae v. fimbriatae glandulis capitatis v. oblongis, in innovationibus herbaceae persistentes; petioli 6–12 mm. longi parce hirti v. glabri, glandulis 2 laminae basi rarius petioli apici insidentibus, interdum stipitatis; lamina e basi emarginata v. rotundata v. interdum acuta obovata v. obovato-oblonga intermixtis rotundatis, 4.3–8.5 cm. longa, 2–4.2 cm. lata, subito v. paullatim acuminata, argutissime saepe subincise duplicato- basi apiceque simpliciter serrata, dentibus acuminatis eglandulosis v. glandula minutissima terminatis, supra remote strigulosa dein glabra, subtus in nervorum axillis barbata v. in costa v. etiam in nervis hirtella ceterum glabra v. tota facie hirta, nervis utrinsecus 7–12, laete viridis, subtus subconcolor v. paullo pallidior. Involucra pleraque sub anthesi decidua, 6–10 mm. longa; pedunculus 2–10(–15) mm. longus, parce v. dense pilosus; flores 1–2(–3) umbellati, coaetanei foliis simul 1.5–5 cm. longis; bracteae (1–)2–3, oblongae ad rotundatae, 5–8 mm. longae, glanduloso-serratae glandulis minutis v. capitatis v. oblongis, herbaceae, persistentes; pedicelli 13–30 mm. longi, glabri v. parce v. interdum densinscule villosi; cupula 4–5.5 mm. longa, breviter lateque v. subanguste campanulata, glabra; sepala triangularia obtusiuscula v. acuta, 2.5–3 mm. longa, utrinsecus glandulis 1–3 brevissime stipitatis munita, glabra v. apice parce ciliata; petala ovalia, 9 mm. longa, 6 mm. lata, interdum apice leviter crenulata; stamina 20–24, petalis subbreviora v. sublongiora, majora 7–11 mm. longa; stylus staminibus subbrevior, usque ad fere duas tertias partes lanato-villosus. Drupa oblonga, 8–9 mm. longa, 4–5 mm. lata, rubra; putamen oblongum, 7–8 mm. longum, 3–4 mm. latum, juxta carinam leviter oblique sulcatum v. subreticulato-costulatum.

Western Hupeh and Szech'uan. See the varieties.

Without the stones, which are remarkably narrow and distinctly, though slightly furrowed, it is difficult to separate this species from *P. variabilis* Koehne, which has much broader and perfectly smooth stones.

Prunus pilosiuscula, var. **barbata** Koehne, n. var.

Folia subtus in nervorum axillis barbata ceterum glabra, exceptis interdum innovationum supremis subtus undique pilosis.

Western Hupeh: Hsing-shan Hsien, woods, side of stream, alt. 1000–1300 m., May and Aug. 1907 (No. **18**); north of Ichang, woodlands, alt. 1300 m., June 1907 (No **18**[a]); Pa-tung Hsien, woods, alt. 1000–1300 m., April and June 1907 (No. **39**); Fang Hsien, woods, alt.

1300–2000 m., Aug. 1907 (No. 70 belongs partly here, partly to *P. Zappeyana* Koehne).

Prunus pilosiuscula, var. **media** Koehne, n. var.

Folia subtus in costa, plerumque etiam in nervis subaccumbenti-hirtella.

Szech'uan, *A. Henry* (No. 5604, type of *P. tatsienensis* var. *pilosiuscula* Schneider). Western Hupeh: Patung, April 1900 (Veitch Exped. No. 316); Patung Hsien, woods, alt. 1300 m., June, 1907 (No. 39[a]); Hsing-shan Hsien, side of stream, alt. 1300 m., June 1907 (No. 16[a]).

Prunus pilosiuscula, var. **subvestita** Koehne, n. var.

Folia omnia subtus undique sparsim in costa nervisque densius pilis rigidulis subaccumbentibus obsita.

Western Hupeh: Patung Hsien, woods, alt. 1000-1300 m., May and June 1907 (No. 41).

Prunus polytricha Koehne, n. sp.

Arbor 10-metralis; truncus 30 cm. diam., ramuli novelli dense rigidulo-villosi, annotini glabri, cinerei; gemmae 2 mm. longae, glabrae. Stipulae lanceolatae v. oblongae, 4–10 mm. longae, glanduloso-serratae v. -fimbriolatae glandulis capitatis, in innovationibus herbaceae, persistentes; petioli 5–10 mm. longi, dense hirto-villosi dein paullo glabriores, glandulis plerumque 2 laminae basi v. petioli apici insertis; lamina e basi sub-acuta v. rotundata v. subemarginata obovata v. obovato-oblonga, 3.7–7.5 mm. longa, 1.7–3.4 cm. lata, caudata, duplicato- basi apiceque simpliciter serrata, dentibus setaceo-acuminatis, glandula minuta demum inconspicua terminatis, junior supra sericeo-hirta, subtus in nervis dense ceterum laxius subaccumbenti-hirsuta, adulta supra strigulosa, subtus brevius hirtella, nervis utrinsecus circiter 7–11, laete viridis, subtus parum pallidior, demum papyracea. Involucrum ignotum; cupula circiter 4 mm. longa, brevis lataque, dense hirtello-villosa; sepala 3 mm. longa, triangularia integra, acutissima, ciliata, ceterum extus parce pilosa; stamina 29 quorum majora ad 8.5 mm. longa; stylus basi pilosus. Pedunculus fructifer 5–14 mm. longus, hirtus; fructus 1–2 umbellati; bracteae 1–2, subrotundatae, 3–7 mm. longae, glanduloso-serratae, glandulis capitatis, inferioribus saepe majoribus; pedicelli 19–30 mm. longi, dense hirto-villosi; petala teste Wilson rosea (pink). Drupa ovalis, circiter 8 mm. longa,

5 mm. diam., rubra; putamen oblongum, 7:4:3 mm., basi ac juxta carinam planam costis 2–3 validiusculis exsculptum.

Western Hupeh: Patung Hsien, alt. 1300–2000 m., June 1907 (No. 47).

Differs from all species of the sect. *Phyllocerasus* in its densely pubescent cupula.

Prunus Rehderiana Koehne, n. spec.

Arbor 5-metralis ramosissima; ramuli novelli lanati v. villosi, vetustiores glabri, cinerei. Stipulae lanceolatae v. anguste lineares, 5–7 mm. longae, glanduloso-fimbriatae glandulis oblongis; petioli sub anthesi 3–10 mm. longi, supra laxe v. densiuscule villosi, glandulis plerumque 1–2 laminae basi, rarius petioli apice insertis; lamina e basi rotundata obovata, 2–4 cm. longa, 1.1–2.2 cm. lata, subito v. caudato-acuminata, argute simpliciter v. vix hinc inde duplicato-serrata dentibus acuminatis saepe incurvis, glandula minuta terminatis, supra in costa villosa ceterum glabra, subtus in nervorum axillis barbata ceterum glabra v. in nervis pilis singulis conspersa, nervis utrinsecus 8–10, laete viridis, subtus vix pallidior. Involucrum ante anthesin deciduum; pedunculus circiter 3 mm. longus, pilosiusculus; flores 1–2, umbellati, coaetanei foliis simul 2–3.5 cm. longis; bracteae 2, rotundatae, 3–5 mm. longae, glanduloso-denticulatae glandulis crassiusculis depresso-conicis v. disciformibus, herbaceae; pedicelli 9–12 mm. longi, densiuscule crispulo-villosi; cupula 4 mm. longa lataque, late breviter campanulata, ima basi pilosiuscula ceterum glabra; sepala reflexa, late ovata acutiuscula, 3 mm. longa, fimbriolis glandulosis utrinsecus 3–5 obsita, glabra; petala rotundata, 7 mm. longa, 6 mm. lata, apice eroso-denticulata; stamina 27, petalis aequilonga, ad 7 mm. longa; pistillum 12 mm. longum, stylus staminibus sublongior, usque ad medium dense molliter villosus. Drupa ignota.

Western Hupeh: Hsing-shan Hsien, woods, common, alt. 1300–1600 m., May 14, 1907 (No. 2831).

As the fruits are unknown, it is difficult to decide whether this species is sufficiently distinct from the other species of this group or to which species it is most closely related. It differs particularly from the allied species with similarly glabrous leaves in the short and copiously pubescent pedicels.

Prunus litigiosa Schneider, var. **abbreviata** Koehne, n. var.

Arbor 3–6-metralis; ramulus novellus basi pubescens. Petioli glabri v. raro pilis paucis conspersi; folia sub anthesi jam ad 4 cm. longa. Pedunculus 3–7 mm. longus, glaber v. parcissime pilosus;

bracteae 4–6 mm. longae; pedicelli 6–12 mm. longi; sepala interdum utrinque denticula unica munita; petala 5 mm. longa, 3.5 mm. lata, alba; stamina ad 6.5 mm. longa; pistillum 11 mm. longum.

Western Hupeh: Fang Hsien, woodlands, rare!, alt. 2000 m., May 15, 1907 (No. **182**, as to flowering branches; the fruiting branches belong to the totally different *P. Rossiana* Koehne.

The whole appearance of this plant, particularly the shape of the cupula and of the sepals agrees well with *P. litigiosa* Schneider. The differences in the floral parts might be explained by the fact that the flowers of the specimens before me are just beginning to open; the pedicels, petals and stamens, therefore, may not have attained their full length.

Prunus involucrata Koehne, n. sp.

Arbor 3–5-metralis; ramuli novelli glabri, annotini vetustioresque cinerei; gemmae quas vidi 1 mm. longae, rotundatae, obtusae, glabrae. Stipulae caducae; petioli 10–12 mm. longi, glabri, glandulis 1–2 prope apicem insertis, plerumque latis planis; lamina e basi rotundata late ovata, 7.5–9.5 cm. longa, 4–5.2 cm. lata, longiuscule subito acuminata, inaequaliter v. hinc inde duplicato-serrata, dentibus late triangularibus acutis v. subcuspidatis, glandula parva punctiformi terminatis, supra glabra, subtus in nervorum axillis barbulata ceterum glabra, nervis utrinsecus 9–11, subtus manifeste pallidior quam supra, papyracea. Involucra sub anthesi arcte adhaerentia, circiter 8–10 mm. longa lataque, ante fructificationem decidua; pedunculus sub anthesi nullus, sub fructibus 3–5 mm. longus; umbellae (2–)3–5-florae, in ramulis brevibus confertissimae, praecoces; bracteae absconditae; pedicelli 9–10 mm. longi inclusi v. subinclusi, fructiferi ad 19 mm. longi, dense villosi; cupula 5 mm. longa, breviter latiuscule campanulata, usque ad medium villosa superne glabra; sepala reflexa, ovata obtusa, 3 mm. longa, integra, ciliolata ceterum glabra; petala orbicularia, 11 mm. longa lataque, bilobo-emarginata, sinu lato triangulari, rosea. Stamina 43, petalis triente breviora, ad 7 mm. longa; pistillum 12 mm. longum, stylus stamina aequans glaberrimus. Drupa ovali-globosa, 10 mm. longa, 3 mm. diam., rubra; putamen subglobosum, 7.2:6.5:5.2 mm., sulcis paucis obsoletis obliquis juxta carinam planam exsculptum.

Western Hupeh: cultivated around Ichang, up to 1000 m. alt., March and May 1907 (No. **1**).

The specimens determined by Pampanini (in *Nuov. Giorn. Bot. Ital.* XVII. 293 [1910]; XVIII. 122 [1911]) as *P. hirtipes* Hemsley, namely Silvestri's No. 973 from Hupeh, *Pa-tao-ho*, alt. 1000 m., and Nos. 3024 and 3024[a] from *Ou-pan-chan*, alt. above 600 m., may belong to *P. involucrata*, if No. 973 is not to be referred to *P. glabra* Koehne.

Prunus malifolia Koehne, n. sp.

Ramuli hornotini, glabri, cano-ochraceo-albicantes, vetustiores cani; gemmae 1–2 mm. longae, glabrae. Stipulae deciduae; petioli 13–16 mm. longi, glabri, glandulis 0, sed interdum maculis 2 vix tumidis petiolo supra medium insidentibus; lamina e basi acuta v. subcordata late ovata v. obovata, 6.5–13 cm. longa, 4–7.4 cm. lata, subito anguste acuminata acumine superne integro, serrata, dentibus mediocribus, late triangularibus, simplicibus v. pro parte duplicatis, subcuspidatis, glandula punctiformi terminatis, glaberrima, nervis utrinsecus 8–10, supra sublutescenti-viridis, subtus manifeste pallidior, tenuiter membranacea. Flores ignoti. Pedunculus nullus; pedicelli fructiferi suppetentes solitarii, 15–20 mm. longi, glabri. Drupae in pedicello geminae[1] rotundato-ovales, altera 11 mm. longa 9 mm. lata, altera 6 mm. longa, 3–4 mm. lata, videntur rubrae; putamen drupae majoris subrotundatum, 9:7.5:5.5 mm., sulcis paucis validis obliquis juxta carinam foveolisque paucis obsoletis exsculptum.

Western Hupeh: Changyang Hsien, woods, alt. 600–1500 m., 1907 (No. 3; mixed with flowering and foliiferous twigs of *P. Conradinae* Koehne).

This species is in the leaves, fruits and particularly in the spots on the petioles so characteristic, that it should not be left undescribed.

Prunus cyclamina Koehne, n. sp.

Arbor 5–8-metralis; ramuli novelli glabri, vetustiores cani v. fuscescentes; gemmae 2–4 mm. longae, glabrae. Stipulae lineari-filiformes, circa 6 mm. longae, basi pinnatifidae, longe glanduloso-fimbriatae; petioli 8–12 mm. longi, glandulis plerumque 2, petioli apice v. laminae basi insertis; lamina e basi rotundata obovata-oblonga, 4.5–10 cm. longa, 2.7–4.5 cm. lata, subito anguste acuminata, argutissime simpliciter et duplicato-serrata, dentibus subsetaceo-acuminatis, glandula minuta terminatis, supra glabra, subtus initio in nervis parce pilosa dein glabra, nervis utrinsecus 9–11, subtus paullo pallidior, papyracea. Involucra magna erecto-clausa, circiter 10–13 mm. longa lataque; pedunculus ad 8 mm. longus inclusus; flores 3–4 umbellati v. subumbellati, coaetanei foliis simul 2.5–3.5 cm. longis; bracteae rotundatae, 3–4 mm. longae, subexsertae, glanduloso-setaceo-serratae glandulis parvis, herbaceae, sub fructu persistentes; pedicelli 15–26 mm. longi, laxiuscule villosiusculi v. superne glabriores; cupula 4

[1] I have seen only two pedicels with fruits, each with a larger and a smaller fruit. It can, however, hardly be assumed that the species has always such twin-fruits.

mm. longa, breviter campanulata, glabra; sepala reflexa, anguste lanceolata obtusiuscula, 7 mm. longa, integra, ciliata; petala oblonga, 15 mm. longa, 6 mm. lata, inciso-biloba, sinu 3 mm. longo anguste triangulari, pallide rosea; stamina 32, petalis subbreviora, ad 12 mm. longa; pistillum 16.5 mm. longum, stylus staminibus parum longior, glaber. Drupa subglobosa, 8.3 mm. longa, 7.5 mm. lata, rubra; putamen ovatum, juxta carinam planam sulcis obsoletissimis.

Western Hupeh: Changyang Hsien, woodlands, alt. 1000–1300 m., April and June 1907 (No. 9).

The shape of the calyx of this species and of *P. Dielsiana* Schneider recalls that of the corolla of *Cyclamen*.

Prunus Dielsiana Schneider, var. **laxa** Koehne, n. var.

Involucra patentia v. subreflexa; pedunculi 6–20 mm. longi, pedicelli 13–35 mm., cupula 4–5 mm., sepala 7–9 mm.

Western Hupeh: Hsing-shan Hsien, woods, alt. 1600–2300 m., May 14, 1907 (No. 68); Patung Hsien, woods, alt. 1300–1600 m., May and June 1907 (No. 37); Patung Hsien, woods, rare!, alt. 1600 m., May and June 1907 (No. 37[a]).

Prunus plurinervis Koehne, n. sp.

Arbor 3–6-metralis; ramuli hornotini accumbenti-hirti, annotini glabri, pallide cani v. cinerei; gemmae 2.5 mm. longae, crasse ovatae, pilosae. Stipulae lineares, circiter 5 mm. longae, glanduloso-fimbriatae; petioli 7–11 mm. longi, plus minus glabrati, glandulis plerumque 1–3, laminae basi insertis; lamina e basi rotundata v. emarginata inverse oblonga, intermixtis ovatis v. obovatis, 4–7 cm. longa, 1.8–3.3 cm. lata, subito longe acuminata, argute simpliciter ac duplicato-serrata, dentibus longiusculis, saepe subincurvis, glandula minuta terminatis, supra sparsim strigulosa, subtus in foliis supremis tantum in costa nervisque sparsim v. densiuscule hirta ceterum glabra v. sparsim hirta, in foliis ceteris subglabra, nervis utrinsecus circiter 12–14, supra laete viridis, subtus vix pallidior, rigidulo-papyracea. Flores ignoti, teste Wilson albi; pedunculi fructiferi 3–7 mm. lati, subaccumbenti-pilosi; fructus solitarii v. bini umbellati; bracteae 2–3, rotundatae ad oblongae, 5–10 mm. longae, glanduloso-serratae glandulis capitatis v. conicis, herbaceae, persistentes; pedicelli 21–32 mm. longi, sericeo-hirti v. glabri. Drupa globosa, 10 mm. longa lataque, rubra; putamen ovato-rotundatum, 8:6:5 mm., juxta carinam planam basique manifeste sulcatum.

Western Szech'uan : south east of Tachien-lu, woods, alt. 2300–2600 m., July 1908 (No. **907**).

Prunus hirtifolia Koehne, n. sp.

Arbor 8-metralis; rami hornotini dense rufo-hirsuti, annotini glabri, cinerei; gemmae 2 mm. longae, glabrae. Stipulae lanceolatae v. oblongae, 8–10 mm. longae, margine glandulis validis conicis, interdum stipitatis ornatae; petioli 10–15 mm. longi, dense rufo-hirsuti, glandulis plerumque 1–2 petioli apice v. laminae basi insertis; lamina e basi acuta v. rotundata ovata v. obovata v. obovato-oblonga, 5–13.5 cm. longa, 3–5.7 cm. lata, subito anguste acuminata, grosse duplicato-, basi apiceque simpliciter serrata, dentibus argute acuminatis glandula parva terminatis, supra sparsim pilis brevibus rigidulis conspersa, subtus dense v. inter nervos laxiuscule hirto-villosa, nervis utrinsecus circiter 10–14, costa subtus ochracea, subtus vix pallidior, membranacea. Flores ignoti. Involucra decidua; pedunculus fructifer nullus v. ad 10 mm. longus, dense pilosus; bracteae solitariae, rotundatae, 5 mm. longae, glandulis marginalibus sessilibus; pedicellus in pedunculo solitarius, 17–24 mm. longus, dense hirsutus. Drupa ovalis, 9 mm. longa, 6.5 mm. lata, verisimiliter rubra; putamen subrotundatum, 7:6:5 mm., juxta carinam obsolete trisulcatus, foveolis obsoletissimis.

Western Szech'uan: Pan-lan-shan, west of Kuan Hsien, woodlands, alt. 2300–2600 m., June 1908 (No. **2818**).

Prunus tenuiflora Koehne, n. sp.

Arbor 4–15-metralis; truncus 10–30 cm. diam; ramuli novelli glabri, vetustiores cinerei v. intense fusci; gemmae (mense Julio) vix ultra 2 mm. longae, glabrae. Stipulae angustissime lineares, 9 mm. longae, basi interdum pinnatifidae, longe glanduloso-fimbriatae, deciduae, petioli 10–20 mm. longi, supra dense dein laxius albo-villosi v. demum glabri, glandulis saepe 1–2 petioli apici, rarius laminae basi insertis; lamina e basi cordata v. rotundata obovata v. ovato-oblonga, 4.5–9.5 cm. longa, 2.2–5.1 cm. lata, subito longe acuminata, argute, raro hinc inde duplicato-serrata, dentibus acuminatis, glandula punctiformi v. capitata terminatis, supra glabra v. raro initio pilis conspersa, subtus glabra, nervis utrinsecus circiter 8–9, supra subpallida, subtus parum pallidior, demum papyracea. Involucra sub anthesi persistentia, erecta v. patentia, circiter 1 cm. longa, 0.5 ad fere 2 cm. lata; pedunculus 4–11 mm. v. sub fructu ad 20 mm. longus, pubescens v. glaber; flores 1–3 umbellati v. subumbellati, coaetanei, foliis simul ad 4 cm. longis; bracteae cuneato-obovatae v. oblongae, 3–6 mm. longae, glanduloso-

fimbriatae glandulis parvis conicis, sub fructu deciduae; pedicelli 17–23 mm., sub fructu ad 32 mm. longi, basi pubescentes v. villosiusculi, superne glabri, fructiferi glabri; cupula 6.5–10 mm. longa, e basi acuta anguste tubulosa sursum subdilatata, glabra; sepala patentia, oblongo-lanceolata, 4–5 mm. longa, integra, glabra; petala late obovata, 12–14 mm. longa, 8–10 mm. lata, bilobo-emarginata, alba ad rosea; stamina 30–41, petalis circiter triente breviora, ad 7 v. 8 mm. longa; pistillum 12.5–15 mm. longum, stylus staminibus vix brevior v. paullo longior, glaber. Drupa subglobosa, 8–9 mm. longa, (5.5–)7.5–8.5 mm. diam., nigra; putamen late ovatum, 6–8: 4.2–6.5:2.7–5 mm., sulcis plus minus obsoletis paucis juxta carinam planam exsculptum.

Western Hupeh: Changyang Hsien, woodlands, alt. 1000 m., April and June 1907 (No. 3[a]); Hsing-shan Hsien, woods, alt. 1300–1600 m., May and June 1907 (Nos. 13, 20); Patung Hsien, woods, alt. 1300–1600 m., May 1907 (No. 51) and June 1907 (No. 51[a]); Patung, woods, April 1900 (Veitch Exped. No 66[a]); Paokang, April 1901 (Veitch Exped. No. 723); Fang Hsien, woods, alt. 1600–2300 m., May and July 1907 (No. 69). Also collected in Hupeh by *A. Henry* (No. 5833).

This species is very similar to *P. Sargentii* Rehder, but differs in the smaller and apparently paler and thinner leaves, the frequent presence of pubescence on the petioles, in the peduncle (4–20 mm. long), the occasional pubescence of the pedicels, the very slender cupula (6.5–10 mm. long, in *P. Sargentii* 5.5–7 mm. long) and in the smaller and broader stone (6–8 mm. long, in *P. Sargentii* 9–10 mm. long). The very similar *P. Conradinae* Koehne has precocious flowers, leaves with 9–12 pairs of veins and a shorter cupula (4–5 mm. long).

Prunus concinna Koehne, n. sp.

Frutex 1–2-metralis; rami vetustiores intense fusci, nitiduli. Folia ignota. Involucra sub anthesi persistentia, 8–9 mm. longa, circa 6 mm. lata; pedunculus nullus; flores 1–2 umbellati, praecoces; pedicelli circiter 8–9 mm. longi, glabri; cupula 9 mm. longa, obconico-tubulosa, glabra; sepala ovato-triangularia obtusiuscula, 4–5 mm. longa, integra, glabra; petala obovata, 10 mm. longa, 7 mm. lata, haud emarginata, subdenticulato-erosa; stamina 37, petalis paene dimidio breviora, ad 6 mm. longa; pistillum 16 mm. longum, stylus stamina paullo superans, glaber.

Western Hupeh: Changyang Hsien, woods, alt. 1300–1600 m., Arpil 1907 (No. 2825).

It is not impossible that this species does not belong to the subsect. *Sargentiella*, but to *Ceraseidos*; this cannot be decided until the leaves are known.

Prunus Twymaniana Koehne, n. sp.

Arbor 3–6-metralis; rami annotini glabri, cano-fuscescentes, vetustiores nigrescentes. Folia sub anthesi tantum nota; petioli ad 4 mm. longi, glabri; glandulae 2 petioli apice v. laminae basi insertae; lamina (videtur ovata) ad 2.5 cm. longa, haud v. leviter acuminata, crenato-serrata, dentibus obtusis v. brevissime cuspidatis, glandula valida breviter conica terminatis, supra glabra, subtus juxta costae partem basalem tantum tenere villosa, purpurascens, nervis utrinsecus circiter 10–11. Involucra erecta, 0.7–1.3 cm. longa; pedunculus brevissimus; flores 1–2 umbellati, subpraecoces; bracteae oblongae, circiter 3-4 mm. longae, glandulis marginatae; pedicelli 9–12 mm. longi, glabri; cupula 7 mm. longa, e basi acuta tubulosa, glabra, purpurascens; sepala erecto-patula, oblonga acutiuscula, 4.5 mm. longa, frequenter glanduloso-fimbriolata, glabra; petala ovata, 6 mm. longa, 4 mm. lata, apice rotundata, eroso-crenulata, alba; stamina 25, petalis fere duplo breviora, ad 3.5 mm. longa; pistillum 12 mm. longum, stylus staminibus 2–3 mm. longior, inferne parce villosus. Drupa ignota.

Western Szech'uan: west and near Wên-ch'uan Hsien, alt. 2000–2600 m., March 1908 (No. **810**, as to flowering branches; the fruiting branches belong to *P. lobulata* Koehne, which has no glands on the serratures of the leaves).

At the request of Mr. Wilson I have named this species in compliment to Bertie Twyman, Esq., of the British Consular service in China, who was of very considerable assistance to Mr. Wilson during 1908. Further investigation is needed to determine whether *P. ampla* Koehne, which is known only in fruiting specimens and has equally large glands on the teeth, belongs here.

Prunus Conradinae Koehne, n. sp.

Arbor 3–12-metralis, truncus 20–50 cm. diam.; ramuli novelli glabri, vetustiores cano-fuscescentes v. cinerei v. intense fusci; gemmae 3–6 mm. longae, glabrae. Stipulae angustissime lineares, 4–7 mm. longae, saepe basi pinnatifidae, longe glanduloso-fimbriatae, post anthesin deciduae; petioli 10–17 mm. longi, glabri, glandulas 2 crassas apice v. paullo inferius gerentes; lamina e basi rotundata v. hinc inde acuta v. subcordata obovata, obovato-oblonga, rarius fere rotundato-ovata, 5.5–10.5(–15) cm. longa, 2.5–5.5–(6.8) cm. lata, subito anguste acuminata, sat profunde, medio duplicato-serrata, dentibus vix v. tenuiter acuminatis, glandula punctiformi terminatis, saepe initio glabra v. pilis brevibus conspersa, demum semper fere glabra, subtus in costa nervisque pilis conspersa, demum glabrescentia

v. glabra, nervis utrinsecus 9–12, subtus vix pallidior, papyracea. Involucra sub anthesi omnia persistentia v. magna ex parte decidua, 6–12 mm. longa, 4–9 mm. lata; pedunculus brevissimus v. rarius ad 10 mm. longus; flores (1–)2–4(–5) umbellati v. rarius breviter racemoso-umbellati, praecoces; bracteae ante anthesin deciduae; pedicelli 5–18 mm. longi, glabri; cupula 4–5 mm. longa, e basi obtusa crassiuscule campanulato-tubulosa, glabra; sepala erecto-patula v. patentia, ovata v. ovato-triangularia obtusiuscula, 2.5–4 mm. longa, integra, glabra v. tenere ciliolata; petala ovata v. obovata, 10–12 mm. longa, 7–7.5 mm. lata, bilobo-emarginata sinu triangulari-aperto, alba ad rosea; stamina 33–43, petalis paullo v. quarta parte breviora, ad 8–10 mm. longa; pistillum 11–13 mm. longum, stylus staminibus subbrevior v. sublongior, glaber. Drupa ovalis, 8–11 mm. longa, 5–9 mm. diam., rubra; putamen ovale, 6.5–8:4.5–5.3:4–4.3 mm., sulcis obsoletissimis juxta carinam planam.

Western Hupeh: Changyang Hsien, woods, alt. 1000–1500 m., April and June 1907 (No. 3, mixed with fruiting branches of *P. malifolia* Koehne); Changyang Hsien, woodlands, alt. 1000–1200 m., flowers, without date, fruiting specimens, June 1907 (No. 5); Changyang Hsien, woods, alt. 1000–1200 m., April and June 1907 (No. 7); Changyang Hsien, woodlands, common, alt. 1000–1200 m., April and June 1907 (No. 11); north and south of Ichang, woods, alt. 600–1600 m., March and July 1907 (No. 3[b]); Ichang, cultivated, March 14, 1900 (Veitch Exped. No. 152).

This species is named for the wife of the author.

Prunus Helenae Koehne, n. sp.

Prunus rufoides, var. *glabrifolia* Schneider in Fedde, *Rep. Nov. Sp.* I. 56 (1905) verisimiliter huc ducenda.

Arbor 4–6-metralis; ramuli hornotini glabri, fusci, annotini intense fusci, submicantes; gemmae 1.5 mm. longae, glabrae. Stipulae ignotae; petioli 12–18 mm. longi, glabri, glandulas 1–3 crassas prope apicem v. pro parte medio gerentes; lamina e basi subcordata v. rotundata ovata, ovato-oblonga v. obovato-oblonga, 7.5–11.5 cm. longa, 3.8–5.3 cm. lata, anguste acuminata, profunde argute duplicato-serrata dentibus vix acuminatis, glandula parva, breviter conica terminatis, glabra v. subtus in nervorum axillis barbulata, nervis utrinsecus 7–12, subtus vix pallidior, membranacea. Involucra sub anthesi persistentia, 1–1.4 cm. longa, 0.8–1 cm. lata, erecta; pedunculus nullus v. brevissimus; flores 3 umbellati, praecoces; pedicelli 8–15 mm., fructiferi ad 18

mm. longi, inclusi v. subinclusi, glabri; cupula 5 mm. longa, e basi obtusa campanulato-tubulosa, glabra; sepala patentia, oblonga obtusiuscula, 3 mm. longa, integra, glabra; petala ovata, 9 mm. longa, 5 mm. lata, acutissima, irregulariter eroso-denticulata, alba; stamina 38, petalis aequilonga, ad 10 mm. longa; pistillum 10 mm. longum, stylus stamina aequans v. subbrevior, glaber. Drupa ovalis, 9 mm. longa, 6 mm. diam.; putamen late ovatum, 7.6:5.8:4.8 mm., obsolete v. sat manifeste sulcatum carina plana.

Western Hupeh: Patung Hsien, thickets, alt. 800–1200 m., April 1907, fruiting branches without date (No. **2826**). Szech'uan: *A. Henry* (No. 5477).

This species is named for the daughter of the author. Henry's No. 5477 is the type of *P. rufoides*, var. *glabrifolia* Schneider, and does not differ in the least in foliage from Wilson's specimens; the pedicels of the fruits are in clusters of 1 to 4 and are 20–23 mm. long, the stone is about 8 mm. long and 5 mm. thick and has rather marked transverse furrows.

Prunus saltuum Koehne, n. sp.

Arbor 5-metralis, truncus 20 cm. diam.; rami annotini crassi, nigro-fusci, hinc inde pilis brevibus conspersi. Folia ignota. Involucra sub anthesi pauca tantum persistentia, 1 cm. longa, 0.7 cm. lata; flores 1–2 umbellati, praecoces; pedicelli circiter 7 mm. longi inclusi, dense pilosi; cupula fere 6 mm. longa, e basi obtusa crasse tubulosa, extus basi dense, superne laxius villosiuscula; sepala erecto-patentia, oblonga subretusa, 3.5 mm. longa, integra, tenere ciliata, extus parce pilosa v. rarius glabra; petala rotundato-ovata, 12–13 mm. longa, 3.5–9 mm. lata, bilobo-emarginata sinu angusto, alba; stamina 39, petalis quarta parte breviora, ad 9 mm. longa; pistillum 11 mm. longum, stylus staminibus subbrevior, glaber. Drupa ignota.

Western Hupeh: Patung Hsien, glades, alt. 1300 m., April 1907 (No. **2824**).

This species is closely allied to *P. pauciflora* Bunge but has dark-colored branchlets, shorter pedicels solitary or in twos, a narrower cupula, longer, less acute calyx-teeth, larger petals and longer stamens. Further differences in the leaves and fruits will probably be found when complete material is known.

Prunus serrula Franchet, var. **tibetica** (Batalin) Koehne, n. comb.

Prunus puddum, var. *tibetica* Batalin in *Act. Hort. Petrop.* XIV. 168 (1895).
Prunus cerasoides, var. *tibetica* Schneider in Fedde, *Rep. Nov. Sp.* I. 54 (1905).

Arbor 5–11-metralis, coma densa, truncus 10–60 cm. diam.; cortex laevis, cinereo-fuscus, haud nitens, rimis transversalibus sparsis, 1.5–3 cm. latis, 4–7 mm. altis rugosis interruptus; ramuli novelli glabri v.

basi parce pulverulenti, demum cano- v. purpureo-fusci, vetustiores cinerei v. fusci; gemmae 4–6 mm. longae, angustae, plus minus pilosae. Stipulae lineari-filiformes, circiter 7 mm. longae, glandulis longis gracilibus, sessilibus v. stipitatis margine munitae; petioli 5–11 mm. longi, glabri, demum saepe purpurei; glandulae 2–5 laminae basi insertae; lamina e basi acuta v. rotundata lanceolata, 3.5–8.5 cm. longa, 0.7–2.8 cm. lata, longe acuminata v. sensim angustata, brevissime argute serrulata, dentibus acutis v. acuminatis, glandula parva anguste oblonga v. fere subulata terminatis, glabra v. subtus barbulata v. infra medium secus costae latus utrumque lanato-villosa, nervis utrinsecus 8–12, laete viridis, subtus paullo pallidior, membranacea v. raro (Wilson No. 988, pro parte) rigidula. Involucra sub anthesi fere omnia decidua, ad 12 mm. longa; pedunculus 0–5 mm., sub fructu ad 11 mm. longus, glaber v. pulverulento-puberulus; flores 1–3 umbellati, coaetanei foliis simul ad 4 cm. longis; bracteae 1.5–2.5 mm. longae, apice dissectae, membranaceae, sub fructu caducae; pedicelli 10–12 mm., fructiferi superne sensim plus minus incrassati ad 23 mm. longi, glabri; cupula 6.5–9 mm. longa, crasse campanulato-tubulosa, glabra; sepala erecto-patula, ovato-triangularia acuminata, 2.3–3 mm. longa, parce minutim glanduloso-denticulata; petala ovato-rotundata, 8.5 mm. longa, 6 mm. lata, apice rotundata v. tricuspidata, alba; stamina 44, petalis sublongiora, ad 10 mm. longa; pistillum 15 mm. longum, stylus staminibus sublongior v. subbrevior, usque ad medium tenere pubescens. Drupa ovata v. rotundato-ovalis, 10–13 mm. longa, 7–8 mm. diam., videtur rubra; putamen ovatum, 11:7:6 mm. (in Wilson No. 988 nonnisi 7.5:6.5 mm., an immaturum?), obtusissimum, valide reticulato-costatum, carina lata complanata.

Western Szech'uan: north of Tachien-lu, alt. 3300 m., September 1908 (No. 988); west of Tachien-lu, woodlands, alt. 3600 m., October 1910 (No. 988 in part); without locality, woods, alt. 3600–4000 m., June 1904, (Veitch Exped., No. 3523); "inter Tachien-lu et Batang, Olun-shi," May 17, 1893, *V. A. Kachkarov*; in the district of Litang, between Si-o-la and Ma-geh-Mung, June 17, 1893, *G. N. Potanin*.

Prunus Herincquiana (Lavallée) sensu Koehne in *Mitt. Deutsch. Dendr. Ges.* XVIII, 175 (1909).

Cerasus Herincquiana Lavallée, *Icon. Arb. Segrez.*, t. 35 (1885), descriptione p. 117 valde emendanda nisi excludenda.

Prunus pendula Maximowicz in *Bull. Acad. Sci. St. Pétersbourg*, XXIX. 98; in *Mél. Biol.* XI. 690 (1883), pro parte, nempe quoad specimina nonnulla authentica.—Dippel, *Handb. Laubholzk.* III. 618 (1903), quoad synonymum *Cerasus Herincquiana*.

Prunus Herincquiana Schneider, *Ill. Handb. Laubholzk.* I. 608 (pro parte) (1906).
Prunus itosakura Makino in *Tokyo Bot. Mag.* XXII. 114 (1908), quoad synonymum *Prunus Herincquiana.*
Prunus Itosakura, var. *ascendens* Makino in *Tokyo Bot. Mag.* XXII. 114 (1908), an huc pertinet? "Veins 9–20 on each side of the leaf." *Prunus itosakra, γ ascendens* Koidzumi in *Tokyo Bot. Mag.* XXIII. 181 (1909), est eadem.

Western Hupeh: Patung Hsien, alt. 1800 m., April 25, 1900 (Veitch Exped. No. 93); Changyang Hsien, mountain sides, April 4, 1900 (Veitch Exped. No. 70); mountain sides, alt. 600–1000 m., April and June 1907 (No. 2833; tree 10–13 m. high).

Korea, woods of Hallaisan, May 1909, *Taquet* (No. 2876); July 1909, *Taquet* (No. 2875); Quelpaert, "in pago Hokeuni," May 5, 1908, *Taquet* (No. 786); Quelpaert prope Hongno, July 1907, *U. Faurie* (No. 1546).

Japan: Provinces of Senano and Nambu, a. 1864, *Tschonoski* (Maximowicz, iter II, specimen of *P. pendula* Maximowicz); Hondo, Hakone, a. 1864, *Tschonoski* (in the Rijks-Herbarium, Leyden, designated as *P. oblongifolia* Maximowicz); cultivated at Tokyo, April 9, 1874, *Hilgendorf* (mixed with *P. serrulata Kriegeri*); Hirosaki, May 28, 1905, *U. Faurie* (No. 6698); without locality, *Siebold* (in the Leyden Herbarium, specimen of *P. subhirtella* Miquel mixed with true *P. subhirtella*).

Prunus canescens Bois in Vilmorin & Bois, *Frut. Vilmorin.* 66, 2 fig. (1904). — Koehne in *Mitt. Deutsch. Dendr. Ges.* XVIII. 177 (1909).

Western Hupeh: Hsing-shan Hsien, cliffs, etc., alt. 1000 m., June 1907 (No. 65); without locality, April 1901 (Veitch Exped. No. 1862).

Prunus droseracea Koehne, n. sp.

Arbor 5-metralis, truncus 20 cm. diam.; ramuli novelli pilis paucissimis longis conspersi, vetustiores glabri, cani. Stipulae lanceolatae, circ. 8 mm. longae, fimbriato-serratae, fimbriis glandula longa conica v. cylindracea terminatis, petioli 6–13 mm. longi, glabri; lamina e basi emarginata v. rotundata ovata v. obovata 2–5 cm. longa 1.3–2.5 cm. lata (sub anthesi), subito longe anguste acuminata, medio profunde duplicato-, basi apiceque simpliciter serrata, dentibus multis bi- v. trifidis acuminatis, glandula sat valida conica terminatis, supra sparsim strigulosa, subtus aequaliter laxe pilis nitidulis obsita, nervis utrinsecus circa 10, subtus haud pallidior. Involucra circa 7–8 mm. longa; pedunculus 2–12 mm. longus, glaber; flores 2–4 subracemoso-umbellati v. umbellati, coaetanei; bracteae rotundatae v. ovatae, 4–8 mm. longae, insigniter fimbriato-serratae, dentibus glandula valida oblonga v. conica terminatis (infimae saepe steriles, subeuphylloideae, involucrum

paullo superantes); pedicelli 12–18 mm. longi, glabri; cupula fere 5 mm. longa, anguste obconico-campanulata, glabra; sepala erecto-patula, ovato-triangularia acuta, 2.3 mm. longa, brevissime glanduloso-denticulata; petala ovata, 5.5 mm. longa, 3.5 mm. lata, acutiuscula, irregulariter eroso-denticulata, alba; stamina 26, petalis aequilonga, ad 6 mm. longa; pistillum 11 mm. longum, stylus staminibus vix longior, usque ad medium parce villosus. Drupa ignota.

Western Szech'uan: Mupin, woods, alt. 1600–2000 m., June 1908 (No. **2821**).

Prunus trichostoma Koehne, n. sp.

Arbor 5–8-metralis; rami vetustiores glabri, pallide ochraceo-cani. Stipulae angustissime lineares, 5–6 mm. longae, longe glanduloso-fimbriatae; petioli 6–10 mm. longi, glabri v. superne parce accumbenti-pilosi; glandulae 1–3, laminae basi insertae, stipitatae; lamina e basi acuta, rotundata v. vix emarginata ovata, obovata v. obovato-oblonga, 2.5–4.5 cm. longa, 1.3–2.3 cm. lata (sub anthesi), acuminata, simpliciter, medio vero inciso-duplicato-serrata, dentibus late triangularibus, acuminatis, glandula punctiformi terminatis, supra in costa pubescens, in nervis parce strigosa, subtus secus costam et interdum secus nervos, rarius in facie parce v. uberius longe villosa, nervis utrinsecus 8–12, subtus paullo pallidior, tenuiter membranacea. Involucrorum deciduorum residua ad 6 mm. longa; pedunculus 3–11 mm. longus, glaber; flores 1–3 umbellati v. subracemoso-umbellati, coaetanei; bracteae 3–8 mm. longae, glanduloso-serratae v. fimbriolatae, herbaceae; pedicelli 11–20 mm. longi, glabri; cupula 6–7.5 mm. longa, obconico- v. subanguste campanulata, post anthesin saepe tubulosa, glabra; sepala erecto-patula v. patentia, oblongo- v. ovato-triangularia, 2–3 mm. longa, denticulis 1 v. paucis glanduliferis utrinsecus munita, ciliata, intus parce pilosa; petala late oblonga v. ovato-rotundata, 7–8.5 mm. longa, 5–5.5 mm. lata, obtusa v. vix emarginata, interdum irregulariter eroso-denticulata; stamina 25–33, petalis subaequilonga, ad 7.5 mm. longa; pistillum 12–14 mm. longum, stylus stamina aequans v. manifeste longior, usque ad mediam v. ad duas tertias partes dense villosus. Drupa ignota.

Western Szech'uan: west of Kuan Hsien, woods, alt. 1600–2000 m., May 1907 (No. **2817**); without locality, May 1904 (Veitch Exped. No. 4860); alt. 2600–3100 m., May 1904 (Veitch Exped. No. 3524[a]).

Somewhat doubtful: Western China, woods, 1904 (Veitch Exped. No. 3527): cupula 4.5 mm., sepala fere 3 mm. longa, petala 5 mm. longa 4 mm. lata, stamina 29, ad 5 mm. longa.

This species is closely related to *P. latidentata* Koehne, which has the same kind of pubescence on the lower surface of the leaves. If the pubescence inside the sepals should prove to be variable, the species ought to be referred as a variety to *P. latidentata*.

Prunus latidentata Koehne, n. sp.

Arbor 5–13-metralis; truncus 10–50 cm. diam.; rami juveniles dense pilosi, mox glabrati, tenues, vetustiores cani v. cano-fusci; gemmae ad 2.5 mm. longae, glabrae. Stipulae angustissime lineares, 2.5–5 mm. longae, glanduloso-fimbriatae; petioli 7–10 mm. longi, glabri; glandulae saepius 1–2, laminae basi insertae, interdum stipitatae; lamina basi acuta, rotundata v. subemarginata, ovata, obovata v. obovato-oblonga, 2–5 cm. longa, 1.2–2.4 cm. lata, sat subito acuminata, profunde duplicato-, basi apiceque simpliciter serrata, dentibus latioribus quam longis, breviter acuminatis, glandula punctiformi terminatis, supra in costa albo-pubescens ceterum pilis brevissimis teneris conspersa v. demum glabrata, subtus juxta costam glabram v. parce pilosam longe dense crispato-villosa ceterum initio interdum in facie neque vero in nervis pilosa, nervis utrinsecus 7–11, subtus parum pallidior, membranacea. Involucra ante anthesin decidua residuis paucis persistentibus; pedunculus brevissimus; flores 1–2 (–3) umbellati, coaetanei foliis simul 2.5–3.5 cm. longis; bracteae deciduae, paucae persistentes 2 mm. longae, fuscae; pedicelli 8–25 mm. longi, basi parce pilosi v. raro glabri; cupula 5.5–6.5 mm. longa, breviter latiuscule campanulata, glabra; sepala erecto-patula, late ovato-triangularia acutiuscula, 2–3 mm. longa, utrinsecus denticulis 1–4 teneris munita; petala ovata, 5–6 mm. longa, 3.5–5 mm. lata, haud emarginata, subintegra, alba v. pallide carnea; stamina 32–35, petalis subaequilonga, ad 4–6 mm. longa; pistillum 15–16 mm. longum, stylus staminibus 4–6.5 mm. longior, glaber v. basi pilis paucis conspersus. Drupa globosa, 9 mm. diam., rubra; putamen rotundatum, 7.6:7:5.3 mm., valide sulcatum et foveolis paucis munitum, carina lata complanata.

Western Szech'uan: west of Kuan Hsien, woodlands, alt. 2000–3000 m., June 1908 (No. **2820**); Tachien-lu, woodlands, August 1808 (No. **2819**, with flowering branches without date); western China, ravines, alt. 4000 m., June 1909 (Veitch Exped. No. 3524); woods, May 1904 (Veitch Exped. No. 3528, doubtful on account of the too scant material).

Prunus micromeloides Koehne, n. sp.

Arbor 3–8-metralis; rami hornotini aestate glabri, vetustiores pallide cani v. nigrescentes; gemmae circ. 3 mm. longae, pilosae. Stipulae oblongo-lanceolatae, circ. 6 mm. longae, pinnatifidae ac glanduloso-fimbriatae glandulis cylindraceis, persistentes; petioli 7–12 mm. longi, secus canaliculum parce villosi; glandulae saepe 0, interdum 1–2, laminae basi v. raro petioli apice insertae, plerumque stipitatae; lamina e basi acuta, rotundata v. emarginata ovata, obovata v. ovato-rotundata, 2.5–7 cm. longa, 1.7–4.7 cm. lata, subito breviter acuminata, inciso-duplicato-serrata, dentibus latis, acutis v. subacuminatis, glandula punctiformi terminatis, supra sparsim nitide strigulosa v. demum subglabra, subtus primo initio densissime tomentoso-albicans postea in nervis tantum pilis nitidis obsita v. etiam in nervis glabra, nervis utrinsecus 7–12, subtus paullo pallidior et subcana, papyracea. Involucra sub anthesi multa persistentia, circ. 4 mm. longa, erecto-patula; pedunculus circ. 4 mm. longus, pubescens v. glaber; flores 2–3 umbellati v. subumbellati, coaetanei foliis simul 3–4 cm. longis; bracteae rotundatae v. late spathulatae, circ. 4 mm. longae, glanduloso-fimbriolatae, herbaceae; pedicelli 5 mm., fructiferi 11–20 mm. longi, pilosiusculi, demum glabri; cupula 5 mm. longa, breviter lateque campanulata, parce pilosa; sepala erecto-patula, rotundata, 1.7 mm. longa, breviter glanduloso-fimbriolata, ceterum glabra; petala obovata, 4.5 mm. longa, 2.5 mm. lata, haud emarginata, irregulariter eroso-crenulata; stamina 19, petalis longiora, ad 7 mm. longa; pistillum 13 mm. longum, stylus staminibus paullo longior, usque ad duas tertias partes molliter villosus. Drupa globosa, 9 mm. (Wilson) v. 12 mm. (Potanin) diam., videtur rubra; putamen rotundatum, 7:7:5 mm. v. 9:7.7:5.5 mm. costis foveolisque validiusculis v. validis, carina complanata.

Western Szech'uan: Wa-shan, thickets, alt. 2300–2500 m., June and September 1908 (No. 824). Also collected in eastern Kansu, Mount Idshu-shan, July 16, 1885, *G. N. Potanin.*

Potanin's specimen, which had been determined as *P. stipulacea* Maximowicz, has the under surface of the leaves more glabrous, the pedicels of the fruits longer and the drupes and stones larger than in Wilson's specimen.

Prunus oxyodonta Koehne, n. sp.

Arbor 2.6–4-metralis; rami juveniles strigulosi, postea glabri, vetustiores cani v. cano-fusci. Stipulae oblongae v. lineares, ad 6 mm. longae, glanduloso-fimbriatae glandulis cylindraceis, persistentes;

petioli 11–13 mm. longi, glabri v. secus canaliculum parce hirtuli; glandulae plerumque 2, laminae basi insertae, stipitatae; lamina e basi rotundata v. cordata ovata v. obovata, 5.5–8.5 cm. longa, 2.8–5 cm. lata, subito acuminata, inciso-duplicato-serrata, dentibus latioribus quam longis, breviter v. anguste acuminatis, glandula punctiformi terminatis, supra pilis nitidis sparsim strigulosa, subtus primo initio undique densiuscule, postea in costa nervisque tantum pilis breviusculis obtecta, nervis utrinsecus circiter 11–14, subtus pallidior, membranacea. Involucra sub anthesi fere tota decidua; pedunculus circ. 3–7 mm. longus, accumbenti-pilosus; flores 2–3 umbellati v. subumbellati, coaetanei foliis simul 3–4 cm. longis; bracteae 3–10 mm. longae, glanduloso-serrulatae, herbaceae, persistentes; pedicelli 6–13 mm. longi, glabri; cupula 5.5 mm. longa, obconico-campanulata, sursum sensim plus minus dilatata, glabra; sepala erecto-patula, late rotundato-triangularia, 2 mm. longa, utrinsecus fimbriolis 1–4 glanduliferis, glabra; petala rotundato-ovalia, 6 mm. longa, 5 mm. lata, haud emarginata, integra v. parum erosa, alba; stamina 31, petalis subaequilonga, ad 6.5 mm. longa; pistillum 13–14 mm. longum, stylus staminibus 2.5 mm. longior, usque ad duas tertias partes laxiuscule hirtus. Drupa ignota.

Western Szech'uan: Ta-hsiang-ling, Ching-chi Hsien, thickets, alt. 1600–2300 m., May 1908 (No. **2822**; the date for the branches with adult leaves not indicated).

This is possibly only a variety of the preceding species. Here seems to belong also the following specimen:

Frutex 1.6–2-metralis; rami juveniles glabri v. subglabri. Folia angustius longiusque acuminata, primo initio subtus tomentosa (ut in *P. micromeloide*), postea densiuscule longe hirta. Pedicelli pro parte ad 17 mm. longi; cupula 6 mm. longa, superne parce pilosa; petala 6 mm. longa, 4.5 mm. lata; stamina 30, ad 6.5 mm. longa (ut in *P. oxyodonta typica*).

Western China: Wa-shan, May 1904 (Veitch Exped. No. 3525).

Prunus glyptocarya Koehne, n. sp.

Arbor 6–10-metralis; rami annotini adulti glabri, crassiusculi, pallide ochraceo-cani dein cani; gemmae 3-5 mm. longae, glabrae. Stipulae oblongae, 4-11 mm. longae, glanduloso-dentatae glandulis cylindraceis, persistentes; petioli 12–16 mm. longi, densiuscule pilosi; glandulae 1–3, petioli apici v. laminae basi insertae, stipitatae; lamina e basi emarginata, rotundata v. hinc inde acuta inverse oblonga,

nonnullis obovato-oblongis, 6–11 cm. longa, 3–5.3 cm. lata, plus minus acuminata, profunde duplicato-serrata, dentibus multo latioribus quam longis, subito argute acuminatis, glandula punctiformi terminatis, supra sparsim strigulosa v. subglabra, subtus in costa nervisque densius, in facie parce v. parcissime hirta, nervis utrinsecus 11–14, laete viridis, subtus subconcolor, membranacea. Flores ignoti. Pedunculus fructifer unicus suppetens 3 mm. longus; bractea decidua; pedicellus 25 mm. longus, glaber incrassatus. Drupa globosa 12.5 mm. longa 12 mm. diam., fusco-rubra; putamen rotundatum, 8:7.3:6 mm., basi oblique truncatum, valide reticulato-costatum, carina complanata.

Western Szech'uan: Wên-ch'uan Hsien, woods, alt. 2000 m., September 1908 (No. **1026**); west of Kuan Hsien, woodlands, alt. 2600–3000 m., August 1910 (No. **4040**).

This species seems very near to *P. oxyodonta* Koehne, but differs in the larger and narrower leaves. The fruit is described on the label as red in No. 1026 and as black in No. 4040, but it appears to be dark red in the latter specimen and not as intensively black as the fruit of *P. pleuroptera* Koehne. The stone of No. 1026 is distinctly reticulate-costate, but in No. 4040 only costate with scarcely anastomosing ribs.

Prunus lobulata Koehne, n. sp.

Arbor 6–11-metralis; rami juveniles hinc hirti, adulti v. annotini glabrati, vetustiores cani, cano-fusci v. nigrescentes; gemmae 3 mm. longae, glabrae v. parce pilosae. Stipulae oblongae v. lanceolatae, circiter 4 mm. longae, glanduloso-inciso-serratae vel -fimbriatae, petioli 7–14 mm. longi, secus canaliculum parce hirti ceterum glabri; glandulae saepe 1–2, laminae basi, rarius petioli apici insertae, brevissime stipitatae; lamina e basi acuta, obtusa v. vix emarginata obovata v. inverse oblonga v. oblongo-lanceolata, 2–8 cm. longa, 1.3–4.4 cm. lata, subito v. paullatim acuminata, inciso-duplicato-serrata, dentibus argutissime acuminatis eglandulosis v. glandula minuta punctiformi terminatis, subtus sparsim strigosa v. demum subglabra, subtus in costa nervisque parce hirta, in facie glabra v. subglabra, nervis utrinsecus 6–10, supra pallidior, membranacea v. papyracea. Flores ignoti. Pedunculus fructifer 1–6 mm. longus; bracteae deciduae (unicam 3 mm. longam, oblongam, glanduloso-fimbriolatam, herbaceam vidi); pedicelli 1–2ni, 11–35 mm. longi, glabri, sursum incrassati. Petala alba teste *Wilson*. Drupa globosa v. globoso-ovalis, 9-12 mm. longa, 9–12 mm. diam., rubra; putamen anguste ovatum, 7.5–11: 5.5–6:4.5–5 mm., validiuscule sulcatum ac foveolatum, carina complanata.

Western Szech'uan: west of Tachien-lu, alt. 3200 m., July 24, 1908 (No. **912**): Tachien-lu, woods, alt. 2300–3000 m., September 1908 (No. **978**); west and near Wên-ch'uan Hsien, alt. 2000–2800 m., August 1808 (No. **810**, as to fruiting branches. The flowering branches belong to *P. Twymaniana*, which is very different in the large glands of the serratures of the leaves).

The species seems very near to *P. stipulacea* Maximowicz which is very similar in foliage.

Prunus pleuroptera Koehne, n. sp.

Arbor 3–10-metralis, truncus ad 30 cm. diam.; rami hornotini hirti, vetustiores subglabri v. glabri, cinerei v. nigricantes; gemmae 3 mm. longae, parce v. uberius pilosae. Stipulae oblongae v. lineares, 4-5 mm. longae, glanduloso-fimbriatae, pro parte persistentes; petioli 5–11 mm. longi, glabri, subtus plerumque in transversum undulato-corrugati; glandulae 2, laminae basi insertae, breviter stipitatae; lamina e basi acuta v. vix emarginata obovata, obovato-oblonga v. rhombeo-oblonga, 1.7–6 cm. longa, 1.1–3 cm. lata, paullatim v. rarius subito acuminata, inciso-duplicato-serrata, dentibus circiter tam longis quam latis, acuminatis, glandula punctiformi terminatis, supra parcissime strigulosa v. demum subglabra, subtus in costa nervisque laxe hirta ceterum glabra v. sparsim pilosa, costa subtus utrinque anguste albido-alata, nervis utrinsecus 7–10, subtus manifeste pallidior atque subcanoviridis, papyracea. Flores ignoti. Pedunculus nullus; bracteae caducae; pedicelli fructiferi solitarii, 10–13 mm. longi, glabri, incrassati. Drupa globosa, 11-13 mm. longa, nigra; putamen rotundatum, 7–7.5:6.5–6.6:5–5.2 mm., validiuscule sulcatum ac manifeste v. obsoletissime foveolatum, carina complanata.

Western Szech'uan: southeast of Tachien-lu, woods, alt. 2300–3000 m., August 1908 (No. **981**); Tachien-lu, woods, alt. 2300–3000 m., September 1908 (No. **984**).

Prunus pleuroptera differs from the allied *P. lobulata* Koehne and *P. stipulacea* Maximowicz in its black fruit and globular not ovoid stones.

Prunus Zappeyana Koehne, n. sp.

Frutex 5-metralis; rami hornotini glabri v. ima basi hirti, vetustiores pallide cani v. fusci; gemmae 2 mm. longae, glabrae. Stipulae ovatae ad lineares, 3–6 mm. longae, glanduloso-fimbriatae, pleraeque persistentes; petioli 7–10 mm. longi, glabri; glandulae 1–4, laminae basi insertae, breviter stipitatae; lamina e basi obtusa rhombeo-obovato-oblonga v. obovato-oblonga, 1.8–8 cm. longa, 0.8–3.5 cm. lata, sat

subito acuminata, duplicato-inciso-serrata, dentibus 2–3fidis, argute acuminatis, glandula punctiformi terminatis, supra parcissime strigulosa v. glabra, subtus in nervorum axillis parce barbata, in costa glabra, in nervis parce v. parcissime hirtula, nervis utrinsecus 5–7, subtus pallidior, papyracea. Flores ignoti. Pedunculus brevissimus v. ad 6 mm. longus; bracteae 1–2, subrotundatae v. ovatae, 4-6 mm. longae, glanduloso-serratae, persistentes; pedicelli solitarii, 15–17 mm. longi, glabri, summo apice excepto haud incrassati. Drupa ovalis, aut 8 mm. longa, 6 mm. diam., ut videtur fusco-rubra (No. 70), aut globosa, 12 mm. diam., nigra (No. 45); putamen ovatum, 6.5:4.3:3.5 mm. v. 8:5:4 mm., obsolete v. paullo manifestius sulcatum, carina complanata.

Western Hupeh: Fang Hsien, woods, alt. 1300–2000 m., June 1907 (No. **70**, belongs partly here, partly to *P. pilosiuscula*, var. *barbata* Koehne); thickets, Patung Hsien, alt. 1000–1600 m., June 1907 (No. **45**).

At the request of Mr. Wilson this species is named in compliment to Walter Reeves Zappey, who was associated with Wilson during 1907–1909 for the purpose of collecting Birds and Mammals. His whole collection of more than four thousand specimens has been presented by Mr. John E. Thayer to the Museum of Comparative Zoölogy of Harvard University.

The fruits of the two Nos. seem to be somewhat different. In No. 70, too, the leaves are smaller (up to 4.2:4 m.) and in No. 45 larger (up to 8:35). From *P. pleuroptera* Koehne this species is distinguished particularly by the ovoid not globular stones and by the midrib not being winged beneath.

Here may be added two doubtful forms under the following name:

Prunus Zappeyana, var. **subsimplex** Koehne, n. var.

1. Exemplaria fructifera. Frutex 1.3–2.6 m. altus; rami hornotini glabri, vetustiores ochraceo-cani; gemmae 1.5 mm. longae. Stipulae 6–7 mm. longae; petioli 5–7 mm. longi, glabri v. superne parce villosi; lamina ovato-oblonga, brevius serrata, dentibus maxima ex parte simplicibus v. subsimplicibus, acuminatis, glandula minutissima v. nulla terminatis, supra in costa villosa, ceterum parcissime, praesertim versus marginem, pilis conspersa, subtus glabra v. axilloso-barbulata et in nervis venisque parce hirtella, subcoriacea, nervis utrinsecus 6–10, subtus multo pallidior. Bracteae 4–7, rotundatae, 3–9 mm. longae, serratae dentibus eglandulosis v. infimis tantum crasso-glandulosis; pedicelli solitarii, 13–21 mm. longi. Drupa 10:8 mm., nigra; putamen 8:5:4 mm., obsolete sulcatum.

Western Hupeh: Changyang Hsien, cliffs, etc., alt. 1300 m., June 1907 (No. **45**[a]).

2. Exemplaria florentia. Rami hornotini et annotini hirti, demum ochraceo-cani. Foliorum lamina ad 2 cm. longa, supra strigulosa, subtus axilloso-barbata ceterum glabra v. parce pilosa, dentibus parvulis, simplicibus v. subsimplicibus, glandula punctiformi terminatis. Involucra 5–7 mm. longa, plus minus decidua; pedunculus nullus; flores 1–2 umbellati, coaetanei; bracteae 2–3, ovatae v. rotundatae, ad 6–11 mm. longae, glanduloso-serratae glandulis crassis; pedicelli 4–7 mm. longi, glabri; cupula 5.5 mm. longa, anguste obconico-campanulata, glabra; sepala erecto-patula, late ovata, 2.5 mm. longa, glanduloso-fimbriolata; petala ovalia, 7 mm. longa, 4.5 mm. lata, haud emarginata, eroso-denticulata, alba; stamina 31, petalis subbreviora, ad 5 mm. longa; pistillum 12.5 mm. longum, stylus staminibus paullo longior, basi parce villosus.

Western China: mountains, alt. 2800 m., May 1904 (Veitch Exped. No. 3526).

This plant, on account of the rather short and mostly simple serratures of the leaves, does not fit very well into the series *Ceraseidos*, but it resembles *P. Zappeyana* so closely and the petals and stamens are, as usual in *Ceraseidos*, so small, that I cannot place No. 3526 elsewhere.

Prunus gracilifolia Koehne, n. sp.

Frutex 3-metralis; rami hornotini ima basi pulverulenti ceterum glabri, fusci, vetustiores cinerei; gemmae 2.5 mm. longae, glabrae. Stipulae circ. 3 mm. longae lataeque, inciso-serratae; petioli 5–7 mm. longi, glabri, purpurei; glandulae plerumque 2 petioli apici, praeterea saepe 1–2 laminae basi insertae; lamina e basi acuta v. cuneata obovato-oblonga, 2–5 cm. longa, 1.2–2.4 cm. lata, longe acuminata, inciso-duplicato-crenata, dentibus tam longis quam latis v. paullo longioribus, obtussissimis, glandula capitata valida terminatis, supra parcissime strigulosa v. subglabra, subtus glabra, nervis utrinsecus 5–11, subtus multo pallidior, rigidulo-papyracea. Flores ignoti. Pedunculus nullus; pedicelli fructiferi 1–2ni, 7–10 mm. longi, glabri; bracteae caducae. Drupa globosa, 7 mm. longa, 6 mm. diam., nigra; putamen ovato-oblongum, obsoletissime paucisulcatum, carina complanata.

Western Hupeh: Fang Hsien, cliffs, etc., alt. 1600 m., August 1907 (No. 178).

Prunus Rossiana Koehne, n. sp.

Rami hornotini ima basi hirtello-puberuli ceterum glabri, fusci, vetustiores cinerei. Stipulae oblique ovatae v. rotundatae, 3–6 mm. longae, glanduloso-dentatae; petioli 5–10 mm. longi, glabri, purpurei

(ut videtur); glandulae plerumque 2, laminae basi, raro petioli apici insertae; lamina e basi rotundata v. acuta obovato-rotundata, nonnullis obovatis intermixtis, 3.5–6 cm. longa, 1.2–4.2 cm. lata, subito breviuscule late acuminata, inciso-duplicato-crenata, dentibus latioribus quam latis, obtusissimis v. subemarginatis, glandula capitata valida terminatis, supra parcissime strigulosa v. subglabra, subtus in nervorum axillis barbulata ceterum glabra, nervis utrinsecus circ. 7–10, subtus pallidior, membranacea. Flores ignoti. Pedunculus fructifer 1–5 mm. longus; pedicelli 1–2ni, glabri, 12–14 mm. longi; bracteae pleraeque caducae, 6–7 mm. longae, obtuse glanduloso-denticulatae, glandulis crassis. Drupa ovali-globosa, 9 mm. longa, 7 mm. diam., nigra (ut videtur); putamen ovale, 7:4.6:3.2 mm., obsolete paucisulcatum ac foveolatum, carina complanata.

Western Hupeh: Fang Hsien, woodlands, rare!, alt. 2000 m., May 15, 1907 (No. **182**, as to fruiting branches; the flowering branches belong to *P. litigiosa abbreviata* Koehne).

This species I have named at the request of Mr. Wilson in compliment to Andrew Ross, Esq., of Ichang, China, to whom Wilson is indebted for much hospitality and other kindly assistance.

Prunus glandulosa Thunberg, var. **trichostyla** Koehne, n. var.

Ramuli novelli glaberrimi v. pulverulenti. Stipulae persistentes. Styli basi pilosi.

Forma **Faberi** Koehne, n. f.

Prunus japonica J. Hutchinson in *Bot. Mag.* CXXXV. t. 8260 (non Thunberg) (1909), an huc pertinet ?[1]

Stipulae persistentes, interdum basi pectinato-pinnatifidae; petioli glabri v. in canaliculo brevissime puberuli; glandulae plerumque 0, raro 1–2 laminae basi insertae; lamina lanceolata v. rarius oblongo-lanceolata, 2–4 cm. longa, 0.6–11 cm. lata, in innovationibus ad 7.5 cm. longa, 2.4 cm. lata, haud v. parum acuminata, utrinque glabra v. subtus leviter axilloso-barbata, nervis utrinsecus circ. 4–6, supremis verticalibus v. conniventibus; pedicelli 3–9(–14) mm. longi, glabri; flores simplices, praecoces; petala obovata, 6–9 mm. longa, 4–6.5 mm. lata, alba; stamina 25–30, ad 7–8 mm. longa, filamentis saepe purpureis. Drupa (in sicco) subglobosa, 12–13 mm. longa, 10–11 mm. diam., rubra; putamen ovatum, 9:5.5:5.5 mm., apiculatum, carina obsoleta, sulcis paucis angustis irregularibus.

Shantung: Tientai and Chefoo Mountains, 1889, *E. Faber*.

[1] The shape of the leaves is not distinctly delineated.

Western Hupeh: Ichang, roadsides, alt. 1800 m., April and June 1907, (No. **43**); cliffs, Fang Hsien, alt. 600–1300 m., August, 1907, (No. **43**[a]).

Prunus tomentosa Thunberg, var. **endotricha** Koehne, n. var.

Frutex 1–3-metralis, v. arbor fere 7-metralis; rami pubescentes v. dense tomentosi saepe in secundum tertiumque annum, sed hornotini interdum autumno basi glabri, vetustiores cortice rimoso sero soluto; gemmae 1.5 mm. longae, parce pilosae. Stipulae lineari-subulatae, ad 6 mm. longae, interdum basi parce pectinatae, persistentes; petioli 2–4 mm. longi, dense villoso-tomentosi, glandulis nullis; lamina e basi acuta elliptica v. oblonga, raro in innovationibus obovata, 2.5–4.8 cm. longa, 1.1–2.6 cm. lata, acuta v. subacuminata, crenato-serrata, dentibus latis rotundatis, breviter mucronato-cuspidatis, supra parcius v. ubere pilis conspersa, subtus hirto-tomentosa cana, nervis utrinsecus 6–9 supra impressis. Involucra 2–2.5 mm. longa, 1-flora; pedicelli subnulli v. ad 2.5 mm. longi; flores subcoaetanei foliis simul vix 1 cm. longis; cupula 4–5 mm. longa, campanulato-tubulosa v. obconica, glabra, intus ima basi excepta densissime pubescens; sepala 2–3 mm. longa, patentia, obtusa, parce minutim serrulata, extus pilosa, intus basi tantum dense pubescentia; petala 8.5–10 mm. longa, 6–9.5 mm. lata, obovata, haud emarginata, alba; stamina 17–19, ad 4–6 mm. longa; pistillum vix 6 mm. longum, ovarium fere a basi pilosum pilis infimis retrorsis, stylus ultra medium dense villosus. Drupa circiter 10.5–14 mm. longa, 9–12.5 mm. diam., parce pilosa, fusco-rubra; putamen ovato-rotundatum, 9.5–10:7–8.5:5.5–7 mm., laeve, carina obsoleta.

Western Hupeh: Hsing-shan Hsien, cliffs, alt. 600–1300 m., April and June 1907 (No. **49**); cultivated (Veitch Exped. No. 28). Western Szech'uan: around Tachien-lu, thickets, alt. 2600 m., July 26, 1908 (No. **911**); Tachien-lu, alt. 2600–3000 m., September 1908 (No. **911**[a], without flowers like 911 but very likely var. *endotricha*); Szech'uan, *A. von Rosthorn* (No. 1839, 1842). — Northern Shensi: Inkiapo, Lao-y-san, May 1899, *G. Giraldi* (No. 5291); Inkiapo above Si-ku-tzui-shan, May 1900, *G. Giraldi* (No. 7186); Shian-gens in Lao-y-san, May 12, 1899, *G. Giraldi* (No. 9293); cemetery of Nan-kia-fen near Huo-kia-zaoz, June 1, 1897, *G. Giraldi* (No. 5290); Po-u-li, April 1900, *G. Giraldi* (No. 7148); Gniu-ju, May 1893, *G. Giraldi* (No. 1138).

SUBGENERIS CERASI SYSTEMA NOVUM.

This subgenus can be divided in two very natural groups:

Grex I. *TYPOCERASUS*. Gemmae supra quamvis folii cicatricem solitariae, hae floriferae, illae ramum foliatum promittentes: plantae triaxiflorae. (Gemmae saepe in ramis abbreviatis confertae.) Petioli longiusculi v. longi.

If, as usual, the branch of the previous year is considered as axis I., the axis of the bud or of the inflorescence will be axis II., exactly as in the subgenus *Padus*, while the pedicel itself, even if the inflorescence is reduced to one flower, is to be called axis III. The plants therefore are tri-axial.

In such a polymorphous group as Cerasus it is not surprising that transitional forms occur. Thus I have observed in *P. stipulacea* and *P. microlepis* occasional ternate buds after the type of *Microcerasus*. Both species, however, belong according to their other characters to *Typocerasus*.

Grex II. *MICROCERASUS*. Gemmae sub florationis tempore typice ternae, media typice ramum foliatum promittens (saepissime vero abortiva), laterales floriferae; plantae quadraxiflorae. Petioli insigniter breves (exc. in *P. pumila* affinisbusque, ubi petioli longiusculi).

The two lateral buds originate in the axils of the lowest pair of scales of the middle bud, their axes, therefore, become axes of the third order, while the pedicels will be axes of the fourth order. The plants, therefore, are quadri-axial.

Grex I. TYPOCERASUS.[1]

Sepala reflexa . . . . . Sect. 1. **CREMASTOSEPALUM.**
Sepala erecto-patula v. rarius patentia (sed cf. *P. cerasoidem*, ubi sepala interdum reflexa videntur). . . . . Sect. 2. **PSEUDOCERASUS.**

Sect. 1. CREMASTOSEPALUM.

Foliorum dentes obtusae v. rotundatae v. emarginatae, glandula saepissime oblique v. basaliter juxta dentem sequentem inserta v. rarius apicali.
Dentes brevissimae. Involucrum (*i. e.* inflorescentiae perulae basales) ante anthesin deciduum. (Europa, Asia occidentalis, America borealis.)
Subsect. 1. MAHALEB.
Folia suborbicularia. Petala glaberrima. Drupa nigra v. sordide lutescens. (Europa, Asia occidentalis.) . . . . . Ser. 1. EUMAHALEB.
Folia longiora angustiora. Petala extus pilosa, nonnisi in *P. emarginata* glabra. Drupa rubra. (America borealis.) . . . Ser. 2. PARAMAHALEB.
Dentes bene evolutae. Involucrum sub anthesi arcte adhaerens magnum v. majusculum. (Europa, Asia occidentalis.) . . . Subsect. 2. EUCERASUS.
Foliorum dentes acutae v. acuminatae v. subito brevissime cuspidatae glandula apicali.
Petala haud emarginata.
Bracteae herbaceae saepe majusculae, sub fructu persistentes. Flores coaetanei.
Racemi breves v. longiusculi, (3–)4–9-flori, densi- v. laxiflori, pedunculati. (China, Japonia usque ad terram Amurensem et insulam Saghalin.)
Subsect. 3. PHYLLOMAHALEB.

[1] Several species of which the flowers are not known can be referred to certain groups only according to their general character. Therefore a revision of these species will be necessary when complete material is available.

Glandulae foliorum bractearumque dentibus insidentes minutissimae, interdum bractearum glandulae infimae tantum majores. (Distributio subsectionis.) . . . . . Ser. 1. APHANADENIUM.
Glandulae foliorum atque imprimis bractearum crassae v. crassissimae, breviter conicae v. depresso-disciformes. (China.)
Ser. 2. MACRADENIUM.

Umbellae (1–)2–4-florae, flore infimo saepe paullo inferius inserto, breviter pedunculatae v. raro sessiles. (China.) Subsect. 4. PHYLLOCERASUS.
Bracteae membranaceae minimae, sub anthesi vel paullo posterius deciduae. Flores coaetanei v. praecoces. (China.)
Subsect. 5. PSEUDOMAHALEB.

Petala inciso-biloba v. manifeste emarginata. Umbellae sessiles v. breviter v. longiuscule pedunculatae flore infimo subremoto, floribus (1–)2–6. (China.)
Subsect. 6. LOBOPETALUM.

Sepala cupula nunc brevi lata nunc manifeste tubulosa breviora. Involucra sub anthesi nunc decidua nunc persistentia; bracteae minimae v. inclusae. Flores praecoces. . . . . Ser. 1. HETEROCALYX.
Sepala cupula brevi lataque duplo longiora lanceolata (in speciebus nonnullis habitu huc pertinentibus vero ignota). Involucra (quoad nota) sub anthesi persistentia; bracteae herbaceae majusculae v. interdum absconditae. Flores coaetanei v. praecoces. . . . . Ser. 2. CYCLAMINIUM.

Sect. 2. PSEUDOCERASUS.[1]

Folia subtus glandulis punctata. (Terra Amurensis.)
Subsect. 7. HYPADENIUM.

Folia subtus eglandulosa.
Involucra magna, circiter 1 cm. longa v. majora. Folia haud insigniter lobulato- v. inciso-duplicato-serrata.
Pedicelli fructiferi haud v. apice tantum sensim incrassati.
Cupula e basi acuta turbinato-tubulosa v. anguste tubulosa, sepala cupula sublongiora v. paullo, raro dimidio breviora. Flores coaetanei v. praecoces (in *P. parvifolia*[2] vero dicunter autumnales). Foliorum dentes saepe acuminatissimae v. in setulam excurrentes. Drupae nigrae; putamen (quoad notum) laeve v. obsolete sulcatum. (China, Korea, Japonia, Saghalin.) . . . . . Subsect. 8. SARGENTIELLA.
Cupula e basi obtusa campanulata v. cylindracea. Drupae quoad notae rubrae.
Flores praecoces. Putamen (quoad notum) laeve v. obsolete sulcatum, (in *P. pauciflora* tantum reticulato-costatum). Cupula 5–9 mm. longa, sepala cupula dimidio circiter v. paullo breviora. Foliorum dentes majusculae, acutae v. acuminatae, rarius setaceo-acuminatae. Umbellae sessiles v. interdum pedunculo ad 10 mm. longo insidentes. (China, Japonia.) . . . . . Subsect. 9. CONRADINIA.
Flores coaetanei. Putamen insigniter rugosum, obtusissimum. Foliorum dentes parvae v. minimae. (Tibet, Yunnan.)
Subsect. 10. SERRULA.

[1] Here particularly the position of many species known only in fruiting specimens will need confirmation by further investigation based on more complete material.

[2] The flowers of the specimens kindly sent me by Mr. Matsumura of Tokyo were collected in spring according to a note on the labels.

Pedicelli fructiferi insigniter incrassati. Putamen insigniter rugosum, obtusissimum (in *P. campanulata* tantum apiculatum). Flores coaetanei v. autumnales; cupula 6.5–15 mm. longa, sepala plerumque cupula dimidia, rarius tertia parte brevior. Foliorum dentes acutae v. acuminatae, nunquam setula terminatae. Umbellae plerumque sessiles, haud raro in eadem specie etiam pedunculo ad 15 mm. longo insidentes. (Sikkim, Nepal, Siam, China orientalis, Formosa, Oshima?) . . . . . Subsect. 11. PUDDUM.

Involucra aut parva aut folia insigniter inciso- v. lobulato-duplicato-serrata.

Folia breviter v. sat profunde serrata. Involucra parva, 5–7 mm. longa; flores praecoces v. subcoaetanei; umbellae sessiles v. pedunculus ad 5, raro ad 15 mm. longus; cupula 4–7 mm., sepala 2.5–5 mm.; stylus pilosus v. raro glaber. Drupae nigrae (quoad notae); putamen 6–7 mm. longum, obsolete sulcatum. (China, Korea, Japonia.)

Subsect. 12. MICROCALYMMA.

Folia insigniter inciso- v. lobulato-duplicato-serrata v. -crenata (sed cf. varietates dubias *P. Zappeyanae*). Flores coaetanei, multo rarius praecoces. (China, Japonia, Ins. Kurilenses.) . . . . Subsect. 13. CERASEIDOS.

Bracteae euphylloideae, inferiores breviter petiolatae (in *P. Veitchii* paullulum tantum supra involucrum exsertae, in *P. canescente* non in omnibus inflorescentiis praesentes. (China.) . . . . . Ser. 1. PHYLLOPODIUM.

Bracteae haud euphylloideae.

Bracteae herbaceae majusculae (3–8 mm.), insigniter glanduloso-fimbriatae, flores subracemosi. (China.) . . . . . Ser. 2. DROSERINA.

Bracteae haud insigniter glanduloso-fimbriatae.

Foliorum dentes glandulis parvis v. nullis terminatae, haud obtusissimae.

Dentes acutissimae v. acuminatissimae, glandula nulla v. punctiformi. (China, 1 species Japonica.) . . . . . Ser. 3. OXYODON.

Dentes obtusiusculae subcuspidatae, glandula parva sed manifesta capitata terminatae. (Japonia, Insulae Kurilenses, 1 species chinensis.) . . . . . Ser. 4. EUCERASEIDOS.

Foliorum dentes obtusissimae v. subemarginatae, glandula valida subdepressa terminatae. (China.) . . . . . Ser. 5. AMBLYODON.

Grex II. MICROCERASUS.

Sepala reflexa, cupula nunc breviora nunc longiora; cupula circ. tam longa quam lata v. paullo latior. Flores 1–4 typice umbellati; involucra minima, sub anthesi, saepe etiam sub fructu persistentia, foliis parvis herbaceis easdem superantibus rarissimis; petala haud emarginata. Ovarium glabrum v. rarissime apice parce pilosum. (America borealis, Asia centralis et orientalis, Himalaya.) . . . . . Sect 1. SPIRAEOPSIS.

Folia basi usque ad tertiam partem v. ultra medium integra, superne brevissime v. minutim subremote arguto-serrulata; petioli 2–11 mm. longi. Stylus glaberrimus. Drupa nigra. Plantae glaberrimae ramis nec virgatis nec gracillimis. (America borealis.) . . Subsect. 1. MYRICOCERASUS.

Folia inde a basi dense simpliciter v. duplicato-crenata v. -serrata, dentibus obtusis v. acutis; petioli 2–6, raro ad 9 mm. longi. Stylus nunc glaber nunc basi pilosus. Drupa rubra. Plantae ramis virgatis v. gracillimis. (Himalaya, Tibet, China ad Mandschuriam, Japonia.)

Subsect. 2. SPIRAEOCERASUS.

Sepala erecta v. erecto-patula v. raro patentia, cupula multo, rarius paullo breviora, raro sublongiora, cupula manifeste tubulosa, v. raro tam longa quam lata tunc simul ovarium saltem apice densissime hirtum. Flores 1–2ni, pedicelli

nulli v. breves, ad summum cupulae aequilongi; involucra parva, sub anthesi persistentia; petala haud emarginata (an semper?). (Africa borealis, Europa meridionalis, Creta, Asia occidentalis et centralis, Himalaya, China; in Korea et Japonia nonnisi culta). . . . . Sect. II. **AMYGDALOCERASUS.**

CLAVES SEU CONSPECTUS SPECIERUM SINENSIUM.

Grex I. TYPOCERASUS, p. 237.

Sect. 1. CREMASTOSEPALUM, p. 237.

Subsect. 1. MAHALEB, p. 237.

Nulla species chinensis.

Subsect. 2. EUCERASUS, p. 237.

Nulla species chinensis.

Subsct. 3. PHYLLOMAHALEB, p. 238.

Ser. 1. APHANADENIUM, p. 238.

Cupula sepala petala glaberrima (in altera specie *P. Maximowiczii* haud chinensi pilosa) . . . . . *P. pulchella.*

Ser. 2. MACRADENIUM, p. 238.

Glandulae foliorum bractearumque dentibus insidentes breviter conicae. Petioli pallidi v. interdum purpurascentes.

Folia subtus glabra v. in nervorum axillis barbulata v. in costa parcissime pilosa. Racemi glaberrimi.

Folia latiora (3.5–9:2.4–4.8 cm.). Pedicelli 5–15 mm. longi. Putamen oblique ovatum, validiuscule oblique sulcatum apiceque scrobiculatum. *P. conadenia.*

Folia angustiora (4–8.7:2–3.5(–4) cm.). Pedicelli 12–22 mm. longi. Putamen rotundatum, valide reticulato-sulcatum ac scrobiculatum. *P. pleiocerasus.*

Folia subtus undique breviter hirtella. Racemorum axis brevis pedicellique hirtelli . . . . . *P. macradenia.*

Glandulae foliorum, sed imprimis bractearum depresso-disciformes. Petioli saepissime saturate v. nigricanti-purpurei. Putamen ovatum.

Folia majora (4–10:2.5–5 cm.). Bracteae majores (8–25 mm. longae). Putamen obsolete oblique sulcatum . . . . . *P. discadenia.*

Folia minora (3–4:2 cm.). Bracteae minores (3–8 mm. longae). Putamen laevissimum . . . . . *P. szechuanica.*

Subsect. 4. PHYLLOCERASUS,[1] p. 238.

Glandulae foliorum dentibus insidentes crassiusculae, subdepresso-capitatae (v. in var. *stenadenia* conicae), bractearum insigniter disciformes, crassae (v. in

[1] The conspectus of this group must be considered as provisional and can give only an approximate guide for the determination of the species. It is not possible to give a workable key, as of several species only the flowers, of others only the fruits are known.

var. *stenadenia* minores anguste oblongae). Plantae glaberrimae exceptis nervorum axillis in inferiore foliorum pagina interdum leviter barbatis.
P. tatsienensis.

Glandulae foliorum dentibus insidentes inconspicuae v. minutae, bractearum haud crasse disciformes infimis interdum exceptis.

Folia laete viridia, subtus plus minus pallidiora (raro adulta pallida subconcoloria sed tunc obovato-oblonga reticulo supra haud prominulo); dentes plerumque angustiores argutius acuminatae.

Petala rotundata v. ovato-rotundata v. obovata, apice obtusissima (ignota in *P. polytricha*, quae pedicellis pilosis gaudet).

Involucra pleraque v. omnia sub anthesi decidua (ignota in *P. polytricha*).

Pedicelli typice glabri v. sparsim pilosi, 10–30 mm., fructiferi interdum ad 48 mm. longi.

Putamen late obovatum v. ovali-rotundatum, laevissimum.
P. variabilis.

Putamen angustum, 7–8 mm. longum, 3–4 mm. latum, leviter sulcatum v. subreticulato-costulatum . . . . . *P. pilosiuscula.*

Pedicelli densiuscule v. dense pilosi.

Folia utrinque undique pilosa. Cupula dense hirtello-villosa, sepala integra ciliata. Pedicelli (fructiferi) 19–30 mm. longi. Putamen angustum, 7 mm. longum 4 mm. latum validiuscule sulcatum.
P. polytricha.

Folia costa excepta glabra. Cupula glabra, sepala minutim denticulata; pedicelli (floriferi) 9–12 mm. longi. (Putamen ignotum.)
P. Rehderiana.

Involucra sub anthesi persistentia; pedicelli glabri, 10 mm. longi. Folia supra sparsim strigulosa, subtus in costa nervisque breviter hirtella.
P. venusta.

Petala anguste oblonga, 8 mm. longa, 3.5 mm. lata, acutiuscula. Involucra sub anthesi plus minus persistentia . . . . . *P. litigiosa.*

Folia insigniter pallida, utrinque concolora, subtus nitidula, orbicularia v. orbiculari-obovata; venarum reticulum supra manifeste prominulum, subtus obscurum; dentes breves latiusculae, cuspidatae, eglandulosae. *P. clarofolia.*

Subsect. 5. PSEUDOMAHALEB, p. 239.

Stylus inferne pilosus; cupula subanguste campanulata; sepala cupulam dimidiam aequantia v. longiora, integra.

Cupula dense hirtella, ut pedicelli; sepala utrinque hirtella; petala 6–8 mm. longa . . . . . *P. yunnanensis.*

Cupula glabra v. subglabra, ut pedicelli; sepala intus glabra. Petala 10–11 mm. longa.

Folia subtus in nervis densiuscule pilosa. Flores 2–3 umbellati; sepala calyce paullo breviora . . . . . *P. Macgregoriana.*

Folia subtus glabra v. vix in nervorum axillis barbulata. Flores 3–6 racemoso-umbellati. Sepala cupulam dimidiam aequantia . . . *P. Henryi.*

Stylus glaberrimus; cupula campanulato-tubulosa, glabra; sepala cupulae parti quartae aequilonga, minutim glanduloso-denticulata, glabra; flores 3–5 racemoso-umbellati, pedicelli glabri . . . . . *P. neglecta.*

Subsect. 6. LOBOPETALUM, p. 241.

Ser. 1. HETEROCALYX, p. 241.

CLAVIS SPECIERUM, QUARUM FLORES SUPPETUNT.

The two species of which the flowers are not yet known cannot be compared with the others and therefore are only mentioned here; the material available is not yet sufficient to form a clear idea of the affinity of the species in this group.

Styli glabri.

Pedicelli parce pilosi v. glabri; involucra ante anthesin decidua v. paucissima persistentia; cupula glabra v. basi tantum villosa.

Pedunculus 5–9 mm. longus, laxe hirtellus; pedicelli laxe villosiusculi; cupula subanguste campanulata, basi densiuscule hirtella, superne glabra; petala biloba sinu triangulari-aperto; stamina 34, petalis triente breviora. *P. scopulorum.*

Pedunculus nullus; pedicelli glaberrimi; cupula breviter tubulosa, glabra; petala inciso-biloba, sinu angusto; stamina 54, petalis quarta parte breviora. *P. glabra.*

Pedicelli dense pilosi, involucris arcte adhaerentibus inclusi v. subinclusi; cupula dense pilosa v. superne glabra; petala biloba, sinu triangulari-aperto.

Cupula campanulata; petala orbicularia; stamina 43, petalis triente breviora. *P. involucrata.*

Cupula breviter tubulosa; petala basi cuneata, ovato-oblonga; stamina 51, petalis aequilonga . . . . . *P. hirtipes.*

Styli inferne pilosi; pedicelli floresque dense pilosi.

Involucra sub anthesi fere omnia caduca. Pedicelli 12–14 mm. longi; cupula tubulosa; sepala intus glabra; petala ovalia, inciso-biloba, sinu angustissimo; stamina 39, petalis triente breviora . . . . . *P. Schneideriana.*

Involucra arcte adhaerentia; pedicelli 6–9 mm. longi, inclusi v. subinclusi; cupula campanulata; sepala intus breviter villosa; petala ovata, brevissime emarginata; stamina 33, petalis aequilonga . . . . . *P. Duclouxii.*

Species quarum flores ignoti.

Plantae glabrae. Folia majuscula lata, dentibus parvulis v. mediocribus, latis, cuspidatis.

Petioli 8–10 mm. longi, glandulas 2 crassas gerentes; lamina 12–13.5 cm. longa, 6.5–8.4 cm. lata, dentibus glandula valida breviter conica terminatis. *P. ampla.*

Petioli 10–16 mm. longi, aut maculas 2 vix tumidas aut glandulas latas (interdum laminae basi insidentes) gerentes; lamina 6.5–13 cm. longa, 4–7.4 cm. lata, dentibus glandula punctiformi terminatis . . . . . *P. malifolia.*

Ser. 2. CYCLAMINIUM, p. 243.

I assume that the species of which the flowers are unknown belong here, because the leaves resemble closely those of *P. Dielsiana.*

Ramuli hornotini glabri. Folia supra glabra. Involucrum magnum, sub anthesi persistens. Flores (2–)3–6 umbellati v. subumbellati.

Petioli glabri, lamina subtus glabra v. in nervis initio parce pilosa. Bracteae brevius glanduloso-fimbriatae; pedicelli laxiuscule villosi v. superne villosi; flores coaetanei; cupula glabra; petalorum sinus anguste triangularis. *P. cyclamina.*

Petioli initio villosi, lamina subtus dense villosa. Bracteae insigniter glanduloso-fimbriatae; pedicelli laxe v. dense villosi. Flores praecoces v. subpraecoces; cupula villosiuscula; petalorum sinus late triangularis. . . . *P. Dielsiana.*

Ramuli hornotini pilosi. Folia supra sparsim strigulosa v. breviter villosa, subtus plerumque dense pilosa, saltem in foliis supremis. (Flores ignoti.) Pedicelli fructiferi solitarii v. bini v. terni pilosi.

Folia minora, 4–7 cm. longa, 1.8–3.3 cm. lata. Bracteae 5–10 mm. longae. Pedicelli 21–32 mm. longi. Putamen manifeste sulcatum. *P. plurinervis.*

Folia majora, pleraque ultra 8 cm. longa. Bracteae caducae v. ad 5 mm. longae. Putamen obsolete sulcatum.

Rami hornotini breviter hirti. Lamina elliptica v. oblonga, 8–9.5 cm. longa, 2.5–4.2 cm. lata; supra sparsim strigosa. Bracteae caducae. Putamen ovatum . . . . . *P. rufoides.*

Rami hornotini dense rufo-hirsuti. Lamina ovata v. obovata v. obovato-oblonga, ad 13.5 cm. longa, 5.7 cm. lata, supra pilis rigidulis conspersa. Bracteae 5 mm. longae, glandulis marginalibus sessilibus. Putamen subrotundatum . . . . . *P. hirtifolia.*

Sect. 2. PSEUDOCERASUS, p. 244.

Subsect. 7. HYPADENIUM, p. 244.

Nulla species in China.

Subsect. 8. SARGENTIELLA, p. 245.

Flores coaetanei.

Folia subtus dense molliter pilosa, petioli pilosi. Pedicelli plus minus pilosi; cupula parce pilosa v. subglabra; stylus basi pilosus. (Flores nonnisi pleni noti.) . . . . . *P. pseudocerasus.*

Folia subtus glabra v. parce pilosa. Cupula glabra; stylus glaber (in *P. Wildeniana* ignotus).

Folia (infimis interdum exceptis) 9–15 cm. longa, 4.5–7 cm. lata, utrinque glaberrima v. raro subtus barbulata, petiolis glaberrimis, intense viridia, dentibus setaceo-acuminatis. Inflorescentiae glaberrimae. . . *P. serrulata.*

Folia 4.5–9.5 cm. longa, 2.2–5.1 cm. lata, petiolis saepe pilosis, dentibus nunquam setaceo-acuminatis. Pedicelli saepe pilosuli.

Petioli 10–20 mm. longi; folia supra glabra v. raro initio pilis conspersa, subtus glabra, subpallida, nervis utrinsecus 8–9; cupula 6.5–10 mm. longa angusta; sepala 4–5 mm. . . . . *P. tenuiflora.*

Petioli 6–11 mm. longi; folia supra in costa v. etiam in nervis, interdum etiam facie pilis conspersa, subtus in costa densiuscule, in nervis laxius rigidulo-pilosa ceterum glabra v. subglabra, nervis utrinsecus 10–14; cupula 4 mm. longa; sepala 3 mm. . . . . *P. Wildeniana.*

Flores praecoces v. subpraecoces, glaberrimi, 1–2 in umbella sessilibus v. subsessilibus.

Glandulae foliorum dentibus insidentes inconspicuae. Pedicelli 8–9 mm. longi; cupula 9 mm., sepala integra 4–5 mm., petala 10 mm. longa; stamina (37) 6 mm.; stylus glaber . . . . . *P. concinna.*

Glandulae foliorum dentibus insidentes validae. Pedicelli 9–12 mm. longi; cupula 7 mm.; sepala frequenter glanduloso-fimbriolata 4.5 mm.; petala 6 mm. longa; stamina (25) 3.5 mm.; stylus inferne parce villosus.
P. Twymaniana.

Subsect. 9. CONRADINIA, p. 252.

Stylus inferne hirsutus; cupula sepalaque extus minutim pubescentia.
P. Sprengeri.

Stylus glaber.
Pedicelli, cupula sepalaque glabra. Rami hornotini petiolique glabri.
Petala 10–12 mm. longa, emarginato-biloba. . . . . *P. Conradinae.*
Petala 9.5 mm. longa, acutissima . . . . . *P. Helenae.*
Pedicelli, cupula sepalaque pilosa. Rami hornotini petiolique pilosi.
Rami vetustiores nigrofusci. Pedicelli 7 mm. longi, sepala 3.5 mm. longa, subretusa; petala 12–13 mm., stamina (39) ad 9 mm. longa. . . . *P. saltuum.*
Rami vetustiores pallide ochracei. Pedicelli 7–17 mm. longi; sepala 3 mm. longa, acuta; petala 8.5 mm.; stamina (49) ad 7 mm. longa. . . . *P. pauciflora.*

Subsect. 10. SERRULA, p. 252.

Folia late elliptica (8–12:3.2–4.8 cm.) petiolis 12–20 mm. longis. Ramuli novelli glabri. Pedicelli 7–27 mm. longi; cupula 9–10 mm., sepala 4–5.5 mm. longa, integra; petala 15 mm. longa, integra v. vix emarginata; stamina 32-34, ad 10 v. 12 mm. longa; stylus glaber . . . . . *P. majestica.*
Folia lanceolata (3.5–10:0.7–2.5 cm.), petiolis 5–14 mm. longis. Ramuli novelli tenere pubescentes. Pedicelli 5–14 mm. longi; cupula 8–9 mm., sepala 3 mm. longa minutim glanduloso-denticulata; petala 8.5 mm. longa, integra v. subtricuspidata; stamina 44, ad 10 mm. longa; stylus inferne pubescens. . . *P. serrula.*

Subsect. 11. PUDDUM, p. 253.

Glaberrima, exceptis foliis initio subtus in nervis pilis paucissimis teneris conspersis. Petioli 7–8 mm. longi eglandulosi; lamina elliptica v. ovato- v. lanceolato-elliptica, inaequaliter argute serrata dentibus subincurvis, glandula minima terminatis, nervis utrinsecus circiter 8–9. Involucra ad 15 mm. longa. Umbellae subsessiles 1–3-florae; pedicelli 6–15 mm. longi. Flores subcoaetanei foliis simul 2.5–4 cm. longis; cupula 6.5–9 mm. longa campanulata v. campanulato-tubulosa; sepala 4–5 mm. longa, obtusa; petala campanulato-conniventia, 10–11 mm. longa, rosea; stamina circ. 25, petalis subaequilonga, ad 8.5 v. 10.5 mm. longa; stylus glaber. Drupa conica, 16 mm. longa, 11 mm. diam., rubra; putamen conico-ellipticum circ. 12 mm. longum 8 mm. latum, foveolatum. . . . *P. campanulata.*

Subsect. 12. MICROCALYMMA, p. 254.

Gemmae pilosae. Petioli 9–16 mm. longi, plus minus pilosi; glandulae rarae, laminae basi, rarius petioli apici insertae; lamina oblonga, obovato-oblonga, obovato-lanceolata v. late elliptica, acuminata, breviter argute simpliciter serrata, subtus in costa nervisque, in innovationum foliis etiam in facie dense accumbenti-pilosa, nervis utrinsecus 9–14(–17) approximatis parallelis rectis. Involucra 7 mm. longa; pedunculus 2–5 mm. longus; flores (1–)2–4 umbellati, subpraecoces, foliis simul 1.5–3 cm. longis; bracteae saepe caducae; pedicelli 13–26 mm. longi, dense villosi; cupula 5–7 mm. longa, tubulosa v. suburceolata, dense villosa; sepala oblonga 3–4 mm. longa, frequenter argute serrulata, extus dense pilosa; petala rotundata v. rotundato-ovalia, 9.5–13 mm. longa, 6–9 mm. lata, biloba; stamina 13–24, petalis breviora, ad 4.5–7 mm. longa; stylus inferne dense villosus. Drupa nigra, putamen obsolete sulcatum . . . . . *P. Herincqiana.*

Subsect. 13. CERASEIDOS, p. 257.

Ser. 1. PHYLLOPODIUM, p. 257.

Cupula sepalaque pilosa, stylus inferne pilosus. Folia supra hirta. Flores coaetanei; pedunculi brevissimi v. ad 10(–17) mm. longi; cupula 5.5–6.5 mm., sepala 2-4 mm., petala haud emarginata 4–5 mm., stamina 2–3.5 mm. longa.
Petioli glabri, folia subtus in nervis tantum pilosa, nervorum paribus circiter 10; dentes latiores quam longae, mucronatae, glandula terminatae; cupula 6 mm.; sepala integra etiam intus pilosa, 2 mm.; petala 4 mm.; stamina 2 mm. . . . . *P. setulosa.*
Petioli hirti v. hirsuti, folia subtus undique hirta. Petala 5 mm.; stamina 3–3.5 mm. longa.
Foliorum dentes tam longae quam latae v. paullo longiores, subito argutissime acuminatae, glandula nulla v. fere inconspicua terminatae. Flores 1–2ni; cupula 6.5 mm. longa; sepala 3.5 mm., integra, intus pilosa. . *P. phyllopoda.*
Foliorum dentes latiores quam longae, e parte obtusa subito cuspidatae v. mucronato-cuspidatae, glandula bene conspicua capitata v. depressa terminatae. Flores (1–)2–5ni; cupula 5.5 cm. longa; sepala 4 mm. serrulata v. rarius integra, intus glabra v. parce tenere pilosa . . . . *P. canescens.*
Cupula sepalaque glabra, stylus glaber. Folia supra glabra, subtus in nervis pilosa, dentes vix longiores quam latae, cuspidatae, eglandulosae. Flores praecoces; pedunculi nulli; pedicelli 8–13 mm. longi, glabri; cupula 8–10 mm., tubulosa; sepala 4.5–5 mm., integra; petala 10 mm., emarginata; stamina 9 mm. . . . . *P. Veitchii.*

Ser. 2. DROSERINA, p. 257.

Rami juveniles dense breviter hirtelli. Petioli hirsuti, foliorum dentes eglandulosae, pagina inferior in nervis hirsuta. Pedunculi pedicellique hirsuti; cupula 6.5 mm. longa, suburceolato-campanulata, ima basi pilosa ceterum glabra; sepala 2 mm. longa, integra; petala 6.8 mm. longa, haud acuta; stamina 40; stylus inferne dense lanato-villosus . . . . . *P. Giraldiana.*
Rami juveniles pilis longis paucissimis conspersi. Petioli glabri, foliorum dentes glandula valida conica terminatae, pagina inferior undique pilosa. Pedunculi pedicellique glabri; cupula 5 mm. longa, obconico-campanulata, glabra; sepala 2.3 mm. longa, minutim glanduloso-denticulata; petala 5.5 mm. longa, acutiuscula; stamina 26; stylus inferne parce villosus . . . . . *P. droseracea.*

Ser. 3. OXYODON, p. 258.

It has been impossible to draw up a good conspectus of the species of this group, as the flowers of five species are unknown, and I have been obliged to separate those of which the flowers are known from those of which only the fruits are known and to indicate the distinguishing characters more fully, that in some degree a correct determination may be obtained. *Prunus Zappeyana* ? var. *subsimplex* has been omitted as being of a too doubtful position.

CONSPECTUS SPECIERUM QUARUM FLORES NOTI.

Folia semper acuminata. Sepala semper, saepe parce, brevissime glanduloso-fimbriolata. Cupula glabra (excepta in *P. micromeloide*).
Flores coaetanei.
Sepala intus plus minus pilosa. Petioli 6–10 mm. glabri v. superne parce pilosi.

Lamina ovata, obovata, obovato-oblonga (2.5–4.5: 1.3–2.3 cm.), dentibus late triangularibus, supra in costa pubescens, in nervis parce stri gosa, juxta costam glabram v. subglabram pilis longis obsita, ceterum parce vel uberius villosa, nervorum paribus 8–12. Pedunculus 3–11 mm., bracteae 3–8 mm.; pedicelli 2–3ni, 11–20 mm., glabri; cupula 5–7.5 mm., subanguste obconico-campanulata; sepala 2–3 mm.; petala 7–8.5 mm.; stamina (25–33) ad 7.5 mm.; stylus ad v. ultra medium dense villosus. Drupa ignota . . *P. trichostoma*.

Sepala intus glabra.

Stamina 25–33. Folia ovata, obovata v. obovato-oblonga. Flores 1–3ni; petala 5–6 mm.; stamina ad 4–6.5 mm.

Folia minora, 2–5:2.1–2.4 cm. Bracteae 2mm. longae deciduae. Ramuli juveniles dense pilosi mox glabrati. Petioli 7–11 mm., glabri; lamina supra in costa albo-pubescens ceterum substrigulosa v. glabrata, subtus juxta costam glabram v. subglabram pilis longis obsita, nervis glabris, utrinsecus 7–11. Pedunculus brevissimus, pedicelli 8–25 mm. longi, basi parce pilosi v. glabri; cupula 5.5–6.5 mm., breviter latiuscule campanulata, sepala 2–3 mm.; stylus glaber v. subglaber. Drupa rubra; putamen rotundatum, valide sulcatum et subfoveolatum. . . . . *P. latidentata*.

Folia majora, 5.5–8:2.8–5 cm. Bracteae 3–10 mm. longae, herbaceae. Ramuli juveniles strigulosi postea glabrati. Petioli 11–13 mm., glabri v. parce pilosi; lamina supra strigulosa, subtus initio densiuscule v. tomentoso-pilosa dein in costa nervisque tantum hirtella, nervis utrinsecus 11–14. Pedunculus 3–7 mm., pedicelli 6–13 mm., glabri; cupula 5.5 mm., obconico-campanulata; sepala 2 mm.; stylus ultra medium laxiuscule hirtus. Drupa ignota . . . . . *P. oxyodonta*.

Stamina circ. 19. Rami hornotini glabri. Petioli 7–11 mm., supra parce villosi; lamina ovato-rotundata, ovata v. obovata, supra strigulosa v. subglabra, subtus initio tomentosa, dein in nervis tantum pilosa v. glabrescens, nervis utrinsecus 7–12. Pedunculus circ. 4 mm., bracteae circ. 4 mm., herbaceae, pedicelli 2–3ni, 5–20 mm., pilosiusculi demum glabri; cupula 5 mm., breviter lateque campanulata, parce pilosa; sepala 1.7 mm.; petala 4.5 mm.; stamina ad 7 mm.; stylus ultra medium villosus. Drupa ut videtur rubra, putamen rotundatum, validiuscule v. valide costatum ac foveolatum. *P. micromeloides*.

Flores praecoces. Rami hornotini glabri v. pilosi. Petioli 5–15 mm., glabri v. supra hirti; lamina obovata ad oblongo-lanceolata, supra glabra v. parcissime strigulosa, subtus axilloso-barbata v. juxta costam longe villosa, nervis utrinsecus 9–15. Pedunculus subnullus, involucro parvo inclusus, pedicelli 1–3ni, 1–3 mm., sub fructu 8–11 mm., glabri; cupula 5.5–7 mm., crasse tubuloso-campanulata; sepala 2–3 mm.; petala 5.5–6 mm.; stamina (35–40) ad 4 mm.; stylus basi pilis paucis obsitus . . . . . *P. stipulacea*.

Conspectus Specierum quarum Flores ignoti.

Putamen rotundatum; bracteae sub fructu deciduae; pedicelli fructiferi incrassati, glabri.

Drupa fusco-rubra (v. fere nigra?); putamen valide reticulato-costatum. Petioli 12–16 mm., densiuscule pilosi; lamina inverse oblonga v. raro obovato-oblonga (6–11:3–5.3 cm.), supra sparsim strigulosa v. subglabra, subtus in costa nervisque densius ceterum parce v. parcissime hirta, nervis utrinsecus 11–14. Pedunculus fructifer 3 mm., pedicellus unicus 25 mm. (Affinis *P. oxyodontae*.) . . . . . *P. glyptocarya*.

Drupa nigra, putamen validiuscule sulcatum ac manifeste v. obsoletissime foveolatum. Petioli 5–11 mm., glabri, subtus plerumque corrugati; lamina obovata, obovato-oblonga v. rhombeo-oblonga (1.7–6:1.1–3 cm.), supra parcissime strigulosa v. subglabra, subtus in costa nervisque laxe hirta ceterum glabra v. sparsim pilosa, costa subtus utroque latere anguste albido-alata, nervis utrinsecus 7–10. Pedunculus nullus, pedicelli solitarii, 10–13 mm. longi. *P. pleuroptera.*

Putamen ovale v. ovatum.

Putamen valide sulcatum et foveolatum, sulcis pluribus. Petioli 7–15 mm., parce hirti v. glabri. Drupa pallida v. rubra. Pedicelli glabri, sursum sensim incrassati.

Foliorum nervi utrinsecus 10–16; lamina ovato-oblonga, oblonga v. inverse oblonga (5–8.5:2.5–4 cm.), supra pilis rigidulis conspersa, subtus in costa nervisque densiuscule ceterum laxe breviter hirta. Pedunculus 8–12 mm.; bracteae 3, herbaceae, circ. 4 mm. longae, pedicelli 17–24 mm. *P. podadenia.*

Foliorum nervi utrinsecus 6–10; lamina obovata, inverse oblonga v. oblongo-lanceolata (2–8:1.3–4.4 cm.), supra sparsim strigosa vel subglabra, subtus in costa nervisque parce hirta ceterum glabra v. subglabra. Pedunculus 1–6 mm.; bracteae deciduae, pedicelli 1–2ni, 11–35 mm. . *P. lobulata.*

Putamen obsolete v. obsoletissime sulcatum, sulcis circiter 2–3. Drupa nigra v. fusco-rubra. Petioli 7–10 mm.; lamina rhombeo-obovato-oblonga v. obovato-oblonga (1.8–8:0.8–3.5 cm.), supra parcissime strigulosa v. glabra, subtus axilloso-barbulata, in costa glabra, in nervis parce v. parcissime hirtula, nervis utrinsecus 5–7. Pedunculus 0–6 mm., bracteae 1–2, herbaceae, 4–6 mm.; pedicelli solitarii, 15–17 mm., glabri, summo apice tantum incrassati. *P. Zappeyana.*

Ser. 4. EUCERASEIDOS, p. 259.

Ramuli novelli dense hirtelli; petioli 4–8 mm., hirtelli; lamina ovata, obovata, v. ovato-oblonga (2–3.8:1–2 cm., sub anthesi), caudata, inciso-duplicato-serrata, dentibus late ovatis, obtusiusculis, subcuspidatis, glandula capitata terminatis, supra strigulosa, subtus in costa hirtella ceterum glabra, nervis utrinsecus circ. 10. Involucra decidua; pedunculus 0–8 mm.; flores 1–2 umbellati, coaetanei; bracteae 2–3 mm. longae, fuscescentes; pedicelli 4–9 mm., dense pubescentes; cupula 5–6 mm., crasse campanulata, dense pubescens; sepala suberecta, triangularia acuta, 2.5 mm., integra v. subintegra, utrinque pilosa; petala ovalia, 8:5.5 mm.; stamina 27, ad 10 mm.; stylus glaber . . . . . *P. caudata.*

Ser. 5. AMBLYODON, p. 262.

Folia 2–5 cm. longa, anguste obovata, subtus glabra, dentes circ. tam longae quam latae v. paullo longiores. Pedicelli fructiferi 7–10 mm. longi . . *P. gracilifolia.*

Folia 3.5–6 cm. longa, obovato-rotundata, subtus axilloso-barbata, dentes latiores quam longae. Pedicelli fructiferi 12–14 mm. longi . . . . . *P. Rossiana.*

Grex II. MICROCERASUS, p. 262.

Sect. 1. SPIRAEOPSIS, p. 262.

Subsect. 1. MYRICOCERASUS, p. 262.

Species Americae borealis.

Subsect. 2. SPIRAEOCERASUS, p. 262.

Folia obovato-oblonga, oblonga, oblongo-lanceolata, lanceolata, elliptica, haud v. parum acuminata, breviter simpliciter v. pro parte subduplicato-serrulata v. -crenata.

Folia subtus ochraceo-hirtello-tomentosa, venarum reticulo subtus valido. Stylus glaber . . . . . *P. dictyoneura.*
Folia subtus glabra v. nonnisi juxta costam hirtella v. barbulata.
Folia supra medium latiora. Stylus glaber . . . . . *P. humilis.*
Folia medio v. infra medium latiora. Stylus glaber v. basi pilosus. *P. glandulosa.*
Folia ovata, ovato-rotundata v. raro ovato-lanceolata, nunquam supra medium latiora, acuminata v. caudata, dentibus majusculis v. magnis duplicato-serrata v. -crenata.
Folia ad summum 3 cm. longa. Stylus usque ad medium hirtus. *P. pogonostyla.*
Folia 3.5–8 cm. longa.
Rami glabri v. pulverulenti. Folia subtus glabra v. in costa nervisque breviter hirtella. Stylus glaber v. basi pilosus . . . . . *P. japonica.*
Rami densissime hirsuti. Folia subtus hirsuta. (Stylus ignotus.) *P. carcharias.*

Sect. 2. **AMYGDALOCERASUS**, p. 268.

Ovarium inde a basi v. saltem a tertia parte villoso-tomentosum. Pedicelli 0.5–4.5, rarissime ad 6.5 mm. longi.
Rami usque in secundum tertiumque annum tomentosi, demum cortice hinc inde rimoso haud v. sero soluto haud v. raro castanei . . . . *P. tomentosa.*
Rami ab initio glaberrimi v. hinc inde pulverulenti, annotini cortice tenui argenteo soluto demum intense castanei . . . . . *P. Batalinii.*
Ovarium summo apice tantum pilosum; pedicelli 6–8 mm. longi. Ramuli superne pubescentes. Flores coaetanei foliis simul ad 3 cm. longis; cupula 4.5 mm. longa, e basi rotundata crasse cupuliformis; sepala 2 mm. longa . . . . *P. cinerascens.*

ENUMERATIO SPECIERUM OMNIUM SUBGEN. CERASI ADJECTIS SPECIERUM NOVARUM DIAGNOSIBUS VEL DESCRIPTIONIBUS.

Grex I. **TYPOCERASUS** Koehne, n. divis.

Sect. 1. **CREMASTOSEPALUM**[1] Koehne, n. sect.

Subsect. 1. MAHALEB Koehne.

Cerasus sect. *Mahaleb* Roemer, *Fam. Nat. Syn.* III. 79 emend. (1847).
Prunus subgen. *Cerasus* sect. *Mahaleb* Koehne, *Deutsche Dendr.* 305 (1893).

Ser. 1. EUMAHALEB Koehne, n. ser.

1. **Prunus Mahaleb** Linnaeus. Europe, Western Asia.

Ser. 2. PARAMAHALEB Koehne, n. ser.

2. **Prunus mollis** Walpers. Western North America.
3. **Prunus emarginata** Walpers. Western North America.
Cerasus californica Greene an huc ducenda?
4. **Prunus pennsylvanica** Linnaeus. Eastern North America.

Subsect. 2. EUCERASUS Koehne.

Prunus sect. *Eucerasus* Koehne, *Deutsche Dendr.* 306 (1893).

5. **Prunus fruticosa** Pallas. Europa to Siberia.

[1] From *κρεμάννυμι*, to hang.

6. **Prunus acida** C. Koch. Southern Europe.
This name may be provisorily retained.
7. **Prunus Cerasus** Linnaeus. Europe, western Asia.
8. **Prunus avium** Linnaeus. Europe, western Asia.

Subsect. 3. PHYLLOMAHALEB Koehne, n. subs.

Ser. 1. APHANADENIUM Koehne, n. ser.

9. **Prunus Maximowiczii** Ruprecht in *Bull. Acad. Sci. St. Pétersburg*, XV. 131 (1857).
Prunus bracteata Franchet & Savatier, *Enum. Pl. Jap.* II. 329 (1879).
Prunus apetala Zabel in *Mitt. Deutsch. Dendr. Ges.* XIII. 60 (non Franchet & Savatier) (1904).
Amurland, eastern Mandshuria, Korea, Saghalin, Japan from Hokkaido to Kiushiu. Not yet reported from China proper.
Prunus Maximowiczii, var. **aperta**, Komarow in *Act. Hort. Petrop.* XXII. 5, 48 (1904).
Mandshuria from the Ussuri through Kirin to Mukden and northern Korea.
10. **Prunus pulchella** Koehne. See p. 197.

Ser. 2. MACRADENIUM Koehne, n. ser.

11. **Prunus conadenia** Koehne. See p. 197.
12. **Prunus pleiocerasus** Koehne. See p. 198.
13. **Prunus macradenia** Koehne. See p. 199.
14. **Prunus discadenia** Koehne. See p. 200.

Specimens of *P. cerasoides* D. Don ("Himalaya boreali-occidentalis, regione temperata, alt. 7000 ped., coll. T. Thomson," in Herb. Ind. Or. Hooker f. & Thomson, distributed as *P. Puddum*) included a leafy branch with leaves resembling closely those of *P. discadenia*. On account, however, of the great distance between western Hupeh and the northwestern Himalayas the branch hardly belongs to *P. discadenia*, but probably to another species not yet described.

15. **Prunus szechuanica** Batalin in *Act. Hort. Petrop.* XIV. 167 (1895).
Szech'uan: "inter Siao-shinte et Wa-sze-kou," July 14, 1893, *V. A. Kachkarov*.

Subsect. 4. PHYLLOCERASUS Koehne, n. subsect.

16. **Prunus tatsienensis** Batalin in *Act. Hort. Petrop.* XIV. 322 (1897).
Szech'uan: between the village Erh-to-shui and Tatsien-lu, April 4, 1893, *G. N. Potanin*; Tatsien-lu, May 12, 1893, *G. N. Potanin*.
Prunus tatsienensis, var. **adenophora** (Franchet) Koehne, n. comb.
Prunus Maximowiczii, var. *adenophora* Franchet, *Pl. Delavay*. 195 (1889).
Ramuli novelli glaberrimi, annotini ochracei, vetustiores cinerei striati. Stipulae ad 2 mm. longae; petioli glaberrimi, glandulis plerumque 2 laminae basi insertis; lamina e basi rotundata v. emarginata late obovata, caudata, duplicato-serrata, glaberrima v. supra remotissime minutissime strigulosa, nervis utrinsecus circiter 6–10. Involucrum fere 1 cm. longum; pedunculus 10–14 mm. longus; flores (2–)3, infimo interdum subremoto; bracteae 3–5, infima oblonga v. oblongo-lanceolata, 13–17 mm. longa 5 mm. lata, ceterae orbiculatae, 4–9 mm. longae; pedicelli 6–11 mm. longi; sepala integra; petala orbiculata, 6.2 mm. longa, 5.2 mm. lata, integra; stamina 38, ad 5 mm. longa; pistillum 7 mm. longum. Cetera ut in typo.
Yunnan: in the garden of Mr. Le Guilcher at Tali, *J. M. Delavay*.
Prunus tatsienensis, var. **stenadenia** Koehne. See. p. 201.
17. **Prunus variabilis** Koehne. See p. 201.

18. **Prunus pilosiuscula** (Schneider) Koehne. See p. 202.
19. **Prunus polytricha** Koehne. See p. 204.
20. **Prunus Rehderiana** Koehne. See p. 205.
21. **Prunus venusta** Koehne, n. sp.

Arbor 6-metralis; ramuli annotini glabri, cinerei v. fuscescenti-cinerei. Stipulae angustissime lineares, glanduloso-fimbriatae; petioli glabri, glandulis 0 v. parvis; lamina sub anthesi 1.25–2 cm. longa, argute duplicato-serrata, dentibus mucronatis glandula minima terminatis, supra sparsim strigulosa, subtus in costa ac nervis breviter hirtella ceterum glabra v. remotissime pilifera, nervis utrinsecus circiter 7–8. Involucrum circ. 1 cm. longum latumque, sub anthesi persistens; pedunculus subnullus; flores 2–3 umbellati, coaetanei; bracteae absconditae, suborbiculatae, 3–6 mm. longae, herbaceae, glanduloso-serratae; pedicelli 10–12 mm. longi, glabri; cupula 5 mm. longa, turbinato-campanulata, paullo longior quam lata, glabra; sepala reflexa, triangularia acutiuscula, 3–4 mm. longa, fimbriolis v. denticulis glandulosis utrinsecus 1–3 munita, glabra; petala ovato-rotundata, 8 mm. longa, 6.5 mm. lata, integra, alba; stamina 23, petalis subaequilonga, ad 7 mm. longa; stylus fere 3 mm., stamina superans, usque ad medium villosus. Drupa ignota.

Western Hupeh: Pa-tung, April 28, 1900, *E. H. Wilson* (Veitch Exped. No. 446).

This species is yet incompletely known, but it differs from those species of this group, the flowers of which are known, in the scales which form at the base of the umbel an involucre persisting during anthesis, in the more turbinate shape of the cupula, and in the nearly sessile umbel. From *P. polytricha* Koehne it differs in its glabrous pedicels, and from *P. clarofolia* Schneider it differs apparently in the more acute teeth of the leaves. *Prunus litigiosa* Schneider, in which the involucre also persists, has much narrower petals.

22. **Prunus litigiosa** Schneider in Fedde, *Rep. Nov. Sp.* I. 65 (1905).
Hupeh: *A. Henry* (No. 5295).

From those species of this group whose flowers are known *P. litigiosa* is provisorily well distinguished by the narrow acutish petals and the somewhat slenderer calyx. To form a correct opinion of this plant, much more copious material and particularly the fruits are needed.

Prunus litigiosa, var. **abbreviata** Koehne. See p. 205.

23. **Prunus clarofolia** Schneider in Fedde, *Rep. Nov. Sp.* I. 67 (1905).
Szech'uan: Nan-ch'uan, summer 1891, *A. von Rosthorn.*

The roundish form of the leaves and their pale color on both sides, as well as the slight lustre of the lower surface and the elevated veins and veinlets on the upper surface are very characteristic. Occasionally I have noticed the pale color and the lustre on the lower surface of the mature leaves also in other species of the group, but the prominent reticulation does not seem to occur in other species, nor the comparatively short and broad, not very acute serratures. It is to be hoped that the flowers will show, when they become known, that *P. clarofolia* really belongs in the subsect. *Phyllocerasus*.

Subsect. 5. PSEUDOMAHALEB Koehne, n. subsect.

24. **Prunus yunnanensis** Franchet, *Pl. Delavay.* 195 (1889).

Arbor excelsa; ramuli novelli hirti, annotini glabri, cano-ochracei v. cani, demum fusci; gemmae 2 mm. longae, ovato-rotundatae. Stipulae subulatae, glanduloso-fimbriatae; petioli 8–12 mm. longi, crassi, dense hirti, glandulas paullo infra

apicem magnas planas gerentes; lamina e basi rotundata obovata v. ovato-oblonga v. oblonga, 4-9.5 cm. longa 2–4.5 cm. lata, acuminata, serrata dentibus parvis acutiusculis glandula parva terminatis, supra sparsim strigosa, subtus in costa nervisque densius ceterum laxius hirta, nervis utrinsecus circiter 11–14. Involucrum ante anthesin deciduum; pedunculus 4–9 mm. longus, dense hirtellus; flores (3–)5–7 breviter umbellato-racemosi, praecoces; bracteae obovatae, vix 2 mm. longae, eroso-dentatae dentibus glanduliferis, dense pilosae; pedicelli 8–13 mm., fructiferi ad 20 mm. longi, dense pilosi; cupula subanguste campanulata, vix 5 mm. longa, dense hirtella; sepala reflexa, ovata obtusa, 2.5 mm. longa, integra, utrinque hirtella; petala orbicularia, 6–8 mm. longa, 5–7 mm. lata, vix crenulata; stamina 38, petalis sublongiora, ad 9 v. 10 mm. longa; pistillum 11 mm. longum, stylus staminibus brevior, usque ad medium ut ovarii apex hirtus. Drupa ovalis, 10 mm. longa 7 mm. diam., atroviolacea; putamen ovatum, 8:6:4 mm., juxta carinam sulcis paucis obliquis obsoletis exsculptum.

Yunnan: woods of Pee-tsao-lo, above Mo-so-yn (Lan-kong), alt. 2500 m., April 4, 1887, *J. M. Delavay;* mount Tche-sousse near Tong-tchouen, May 26, 1882, *J. M. Delavay;* ravines of Tan-tchang-kiou near Hokin, May 22, 1885, *J. M. Delavay* (No. 1049; I have not seen this number).

This species has been fully described to complete the original description.

25. **Prunus Macgregoriana** Koehne, n. sp.

Arbor 6-metralis; rami annotini crassi, intense fusci, glabri. Folia (nondum evoluta) 1.5–2 cm. longa, argute serrata, dentibus brevibus glanduliferis, supra sparsim pilosa, subtus in nervis densiuscule pilosa ceterum glabra, nervis utrinsecus circiter 8–11. Involucrum ante anthesin deciduum, squama hinc inde solitaria ad 1 cm. longa persistente; pedunculus 5–10 mm. longus, pubescens; pedunculus 5–10 mm. longus, pubescens; flores 2–3 umbellati v. infimo interdum subremoto, subpraecoces; bracteae ovatae v. rotundatae, 2–3 mm. longae, glanduloso- ac subfimbriato-serratae; pedicelli 10–17 mm. longi, superne parcissime hirtelli; cupula 5 mm. longa, 3 mm. lata, subanguste campanulata, glabra; sepala reflexa, oblonga obtusa, 4 mm. longa, integra, glabra; petala rotundato-ovalia, 11 mm. longa, 8 mm. lata, vix crenulata, rosea (pink); stamina 39, petalis subaequilonga, ad 11 mm. longa; stylus staminibus parum longior, usque ad medium laxe hirtellus. Drupa ignota.

Western Hupeh: Patung, April 24, 1900, *E. H. Wilson* (Veitch Exp., No. 474).

At the request of Mr. Wilson this species is named in compliment of Mr. Donald Macgregor, superintendent of parks and the public gardens of Shanghai, who has made a small but interesting collection of Ningpo plants for the Arnold Arboretum.

26. **Prunus Henryi** (Schneider) Koehne, n. sp.

Prunus yunnanensis, var. *Henryi* C. K. Schneider in Fedde *Rep. Nov. Sp.* I. 66 (pro parte) (1905).

Ramuli novelli glabri, vetustiores crassi, intense v. nigro-fusci; gemmae 3.5–5 mm. longae, crasse ovatae obtusae, glabrae. Stipulae lineares, circiter ad 8 mm. longae, glanduloso-fimbriatae; petioli 8–9 mm. longi, glabri, glandulas 1-2 summo apice gerentes; lamina e basi acuta v. rotundata ovata v. ovato-oblonga, sub anthesi ad 4 cm. longa 2 cm. lata, subito longe acuminata, argute, hinc inde duplicato-serrata, dentibus angustis, glandula minutissima terminatis, supra in costa longe tenere villosa, subtus glaberrima v. in nervorum axillis vix barbulata, nervis utrinsecus circiter 7–10. Involucrum ante anthesin deciduum v. hinc inde persistens, 6 mm. longum latumque; pedunculus 2–6 mm. longus, glaber; flores 3–6, breviter umbellato-racemosi, coaetanei; bracteae 1–1.5 mm. longae, fuscescentes, apice

glanduloso-fimbriolato-serratae; pedicelli 6–13 mm. longi, glabri; cupula vix 4 mm. longa, subanguste campanulata, glabra v. superne parcissime pilosa; sepala reflexa ovata obtusa, 2 mm. longa, subtus parce pilosa, supra glabra; petala ovali-ovata, 10 mm. longa, 6 mm. lata, alba; stamina 30, petalis subaequilonga, ad 9 mm. longa; pistillum 11 mm. longum; stylus stamina aequans, basi v. usque ad medium laxiuscule hirtellus. Drupa ignota.

Yunnan: Mengtze, woods, alt. 1800 m., *A. Henry* (No. 10629).

27. **Prunus neglecta** Koehne, n. sp.

Prunus yunnanensis, var. *Henryi* C. K. Schneider in Fedde *Rep. Nov. Sp.* I. 66 pro parte (1905).

Arbor 10-metralis; rami vetustiores crassi, pallide cani, demum intense fusci, glabri. Folia ignota. Involucra ante anthesin decidua, paucissima persistentia, 9 mm. longa, 3 mm. diam.; pedunculus 2–7 mm. longus, glaber; flores 3–5 breviter umbellato-racemosi, supremi 3 plerumque umbellati, praecoces; bracteae 0.5–1 mm. longae, fuscescentes, apice glanduloso-fimbriatae; pedicelli 5–8 mm. longi, glabri; cupula 5 mm. longa, campanulato-tubulosa, glabra; sepala reflexa, brevia obtusissima, 1.5 mm. longa, minutim parce glanduloso-denticulata, ceterum glabra; petala obovata (videntur 10 mm. longa, 5–6 mm. lata, male conservata), alba; stamina 27, petalis aequilonga, ad 9 v. 10 mm. longa; pistillum 11 mm. longum; stylus stamina aequans, glaberrimus.

Yunnan: Mengtze, woods, alt. 2000 m., *A. Henry* (No. 10629*B*).

Subsect. 6. LOBOPETALUM Koehne, n. subsect.

Ser. 1. Heterocalyx Koehne, n. ser.

28. **Prunus scopulorum** Koehne, n. sp.

Arbor 6-metralis; rami vetustiores validi, fusci glabri; gemmae ad 7 mm. longae, oblongae, acutae, glabrae. Folia nondum evoluta, dentes videntur obtusae, glandula crassa conica terminatae, pagina inferior subtus in nervis laxiuscule sericeo-villosa, inter nervos glabra v. subglabra. Involucra sub anthesi fere omnia decidua, paucissima persistentia ad 1 cm. longa; pedunculus 5–9 mm. longus, laxe hirtellus; flores 2–4 umbellati v. infimo subremoto subumbellati, subpraecoces foliis simul 1–2 cm. longis; bracteae 1–2.5 mm. longae, apice inciso-serratae, deciduae; pedicelli 15–19 mm. longi, laxe villosiusculi; cupula 6 mm. longa 3 mm. lata, subanguste campanulata, basi densiuscule hirtella, superne glabra; sepala reflexa, ovata obtusiuscula, 4 mm. longa, integra, ciliolata, ceterum glabra; petala ovalia, 15 mm. longa, 10.5 mm. lata, biloba sinu triangulari-patente; stamina 34, petalis triente breviora, ad 9.5 mm. longa; stylus stamina aequans, glaber. Drupa ignota.

Western Hupeh; Ichang, cliffs, March 16, 1900, *E. H. Wilson* (Veitch. Exped. No. 146).

Further material is needed to decide whether *P. ampla* Koehne, known only from leaves and distinguished by its thick conical glands of the serratures, may not belong here.

29. **Prunus glabra** (Pampanini) Koehne, n. sp.

Prunus hirtipes, var. *glabra* Pampanini in *Nuov. Giorn. Bot. Ital.* XVII. 293 (1910); XVIII. 122 (1911).

Ramus annotinus fuscescens, glaber; gemma terminalis 8 mm. longa, oblonga, acuta, glabra. Folia ignota. Involucra ante anthesin decidua; pedunculus nullus; flores 3–4, umbellati, praecoces; bracteae caducae; pedicelli circ. 14–16 mm. longi,

glabri; cupula subtubuloso-campanulata, 5 mm. longa, glabra; sepala reflexa, triangularia acuta, 2.5 mm. longa, integra, ciliolata ceterum glabra; petala anguste oblonga, 12 mm. longa, 5 mm. lata, inciso-biloba sinu 4 mm. longo angusto; stamina 54, petalis quarta parte breviora, ad 9 mm. longa; pistillum 14 mm. longum, glaberrimum, stylus stamina aequans. Drupa ignota.

Hupeh: Sian-men-kou, alt. c. 900 m., May 1–Dec. 10, 1906, *C. Silvestri* (No. 974; vidi fragmentum cum umbellis duabus); Ou-pan-chan, alt. above 600 m., March 14–23, 1910, *C. Silvestri* (No. 3025, ex Pampanini).

30. **Prunus involucrata** Koehne. See p. 206.

31. **Prunus hirtipes** Hemsley in *Jour. Linn. Soc.* XXIII. 218 (1887).

The specimens determined by Pampanini as *P. hirtipes* Hemsley belong probably to *P. involucrata* Koehne, see p. 206.

32. **Prunus Schneideriana** Koehne, n. sp.

Flowering (type) specimens, collected at Ningpo by *Faber:*

Rami annotini sat crassi, cano-fuscescentes, obsolete hirti. Foliorum nondum evolutorum dentes glandula validiuscula capitata terminatae, pagina superior sparsim pubescens, inferior in nervis pilosa, inter nervos subglabra, nervis utrinsecus circiter 8–11. Involucra sub anthesi fere omnia caduca, squama interiore quadam hinc inde persistente 7 mm. longa; pedunculus 0–2 mm. longus; flores 1–2 umbellati subpraecoces, foliis simul 1–1.5 cm. longis; bracteae vix 1.5 mm. longae, deciduae; pedicelli 12–14 mm. longi, dense hirti; cupula 6 mm. longa, tubulosa, dense hirta; sepala reflexa, oblonga obtusiuscula, 5 mm. longa, subtus hirta, supra glabra, fimbriis 1–3 glanduliferis utrinsecus munita; petala ovalia, 12 mm. longa, 7.5 mm. lata, inciso-biloba, sinu 3.5 mm. longo angustissimo; stamina 39, petalis triente breviora, ad 8.5 mm. longa; stylus staminibus vix brevior, usque ad tertiam partam breviter laxiuscule hirtus.

Fruiting specimens, collected near Ningpo by *Macgregor*, probably belong here:

Ramuli hornotini obsolete hirti, vetustiores cinerei, glabri. Stipulae deciduae; petioli 8–12 mm. longi, supra hirti v. subglabri, glandulis plerumque 2 apici insertis; lamina e basi rotundata v. rarius subacuta oblonga v. obovato-oblonga v. late ovata, 6–10 cm. longa, 3.2–5.3 cm. lata, subito longiuscule acuminata, serrata dentibus parvulis hinc inde duplicatis, obtusiusculis v. acutiusculis, glandula parva v. validiuscula capitata v. breviter conica terminatis, supra in costa villosa ceterum glabra, subtus glabra v. in costa nervisque, rarius etiam in venis, sparsim v. parcissime hirta, nervis utrinsecus circ. 7–9, papyracea, subtus pallidior. Pedunculus nullus; pedicelli 1–2 umbellati, 18–28 mm. longi, hirti. Drupa rotundato-ovalis, circ. 10 mm. longa, 8 mm. diam.; putamen subrotundatum, 8:7:5.3 mm., sulcis validiusculis paucis obliquis juxta carinam planam exsculptum.

Chekiang: mountains of Ningpo, 1871, *E. Faber* (flowering specimens); vicinity of Ningpo, 1908, *D. Macgregor* (fruiting specimens).

33. **Prunus Duclouxii** Koehne, n. sp.

Arbor; rami annotini crassi rigidi, cinerei, fusco- v. nigrescenti-puncticulati, glabri, vetustiores nigrescenti-fusci; gemmae 4–5 mm. longae, crasse ovatae, glabrae. Folia ignota. Involucra sub anthesi arcte adhaerentia, 6–8 mm. longa lataque; pedunculus nullus; flores circiter 4 umbellati, praecoces; bracteae absconditae; pedicelli 6–9 mm. longi, inclusi v. subinclusi, dense hirtelli; cupula 4 mm. longa, subanguste campanulata, hirtella; sepala reflexa, ovata obtusa, 2 mm. longa, basi parce glanduloso-fimbriolata ciliata, subtus parce hirtella, intus breviter villosa; petala ovata, 9–10 mm. longa, 6 mm. lata, leviter emarginata; stamina 33, petalis aequilonga, ad 9 mm. longa; pistillum 12 mm. longum, stylus stamina aequans, basi parce hirtus. Drupa ignota.

Yunnan: "Environs de Yunnan-sen, dans une ravine de la montagne," Feb. 16, 1897, *Ducloux* (No. 77).

34. **Prunus ampla** Koehne, n. sp.

Rami hornotini crassi (fere 3 mm. diam.), cano-fuscescentes, glabri, vetustiores ignoti; gemmae 4 mm. longae, ovatae, acutae, glabrae. Stipulae caducae; petioli 8–10 mm. longi, 2 mm. lati, glabri, glandulas 2 crassas, ovales, ad 2 mm. longas 2 mm. latas excavatas infra apicem gerentes; lamina e basi late rotundata late obovata, 12–13.5 longa, 6.5–8.4 cm. lata, subito breviter acuminata, hinc irregulariter hinc duplicato-serrata, dentibus latis, cuspidatis, glandula valida breviter conica terminatis, utrinque glabra, nervis utrinsecus circiter 10, supra ut videtur saturate viridis, subtus pallide viridis, membranacea. Cetera ignota.

Szech'uan: Nan-ch'uan, summer 1891, *A. von Rosthorn* (No. 158).

The leaves are so characteristic and so different from those of all other cherries that it seemed advisable not to leave this species undescribed, though neither the flowers nor the fruits are known. It is not impossible, however, that it belongs to *P. scopulorum* Koehne, known only in the flowering state. It should be compared also with *P. Twymaniana* Koehne of the sect. *Pseudocerasus*, which has equally large glands on the serratures and is known only in the flowering state.

35. **Prunus malifolia** Koehne. See p. 207.

Prunus malifolia, var. **Rosthornii** Koehne, n. var.

Petioli 10–12 mm. longi, glandulis 1–2 latis petioli apici v. laminae basi insidentibus; lamina 8–10.8 cm. longa, 4–6.2 cm. lata, supra saturatius viridis. Cetera ut in typo, sed drupae ignotae.

Szech'uan: Nan-ch'uan, summer 1891, *A. von Rosthorn* (No. 2420).

This is possibly a distinct species.

Ser. 2. Cyclaminium Koehne, n. ser.

36. **Prunus cyclamina** Koehne. See p. 207.

Prunus cyclamina, var. **biflora** Koehne, n. var.

Arbor 13-metralis; rami vetustiores nigrescentes. Stipulae 9–15 mm. longae, petioli 8–14 mm.: lamina late elliptica v. inverse oblonga, angustior quam in typo, 6.5–9.5 cm. longa, 2.4–3.7 cm. lata, glaberrima, nervis utrinsecus circiter 8–10. Pedunculus 8–13 mm. longus; flores bini; pedicelli 16 mm. longi, cupula 3 mm., sepala 5 mm.; stamina 30, ad 9 mm. longa.

Western China: Mount Omei, May 1904, *E. H. Wilson* (Veitch Exped. No. 4859).

37. **Prunus Dielsiana** Schneider in Fedde, *Rep. Nov. Sp.* I. 68 (1905).

"*P. szechuanica*, var.?" seu "*P. szechuanica*, var. *Dielsiana* Schneider," l. c., non *P. szechuanica* Batalin.

Frutex arborescens 5–6-metralis v. arbor 6–10-metralis, truncus 20–40 cm. diam.; ramuli novelli glabri, vetustiores cinerei v. subfuscescentes; gemmae 2 mm. longae, rotundatae, glabrae. Stipulae lineari-filiformes, 8–15 mm. longae, basi pinnatifidae laciniis 1–3 angustis, 2–6 mm. longis, longe glanduloso-fimbriatae glandulis crassis; petioli 8–17 mm. longi, longe villosi v. demum subglabri, glandulis 1–3 validis infra v. supra medium v. apice muniti; lamina e basi acuta v. rotundata v. emarginnata angustius latiusve inverse oblonga, 8–14 cm. longa, 4–5.5 cm. lata, subito anguste acuminata, simpliciter ac duplicato-serrata, dentibus majusculis, breviter argute acuminatis, glandula validiuscula disciformi terminatis, supra glabra, subtus in costa nervis venisque dense ceterum laxe molliter villosa, nervis utrinsecus circiter 10–12, demum subtus ochraceis, subtus vix pallidior quam supra,

papyracea. Involucra magna sub anthesi persistentia, posterius decidua; pedunculus 6–20 mm. longus, laxe villosus; flores (2–)3–5(–6) umbellati v. subumbellati, praecoces v. subpraecoces, foliis simul interdum ad 1–2 cm. longis, bracteae rotundatae, 3–6 mm. longae, herbaceae, insigniter valideque glanduloso-fimbriatae, glandulis crassis, breviter conicis; pedicelli 10–35 mm. longi, laxe v. dense villosi; cupula 3.5–5 mm. longa, breviter campanulata, villosiuscula; sepala reflexa, oblonga v. lanceolata acuta, 6.5–9 mm. longa, integra v. subintegra, subtus glabra v. inferne pilosa, saepe ciliata; petala ovalia, 11–14 mm. longa, 5–9 mm. lata, biloba sinu triangulari-aperto, alba v. rosea; stamina 32–36, petalis subaequilonga, ad 11–13 mm. longa; pistillum 15–19 mm. longum, stylus staminibus subbrevior v. manifeste longior, glaber. Drupa globosa, 9 mm. longa, 8 mm. diam., rubra; putamen ovatum, 7: 5: 4 mm., carina subplana, ceterum laevissimum.

Hupeh: *A. Henry* (No. 5812).

As this species has not been fully described by Schneider a complete description is given here. Henry's No. 5812 is in fruit with the peduncle 8–10 mm. long and with the pedicels 16–22 mm. long, and it is impossible to decide to which of the two following varieties it belongs.

Prunus Dielsiana, var. **laxa** Koehne. See p. 208.

Prunus Dielsiana, var. **conferta** Koehne, n. var.

Involucra erecta clausa, circ. 1 cm. longa lataque; pedunculi ad 13 mm. longi, pedicelli 8–14 mm., cupula 3.5–4 mm., sepala 6.5–7 mm.,

Western Hupeh: Patung, side of stream, April 1900, *E. H. Wilson* (Veitch Exped. No. 308).

38. **Prunus plurinervis** Koehne. See p. 208.

39. **Prunus rufoides** Schneider in Fedde, *Rep. Nov. Sp.* I. 55 (1905).

Ramuli hornotini breviter hirti, annotini subglabrati nigrescenti-cinerei, vetustiores fusci; gemmae fere 3 mm. longae, acutae, glabrae. Stipulae caducae; petioli 9–10 mm. longi, hirti, glandulis duabus validis prope apicem muniti; lamina e basi rotundata elliptica v. oblonga, 8–9.5 cm. longa, 2.5–4.2 cm. lata, subito breviter v. anguste longeque acuminata, argutissime simpliciter ac duplicato-serrata, dentibus longiusculis, subsetaceo-acuminatis, subincurvis, glandula minutissima terminatis, supra sparsim strigosa, subtus in costa nervisque dense, ceterum laxius subaccumbenti-hirta, nervis utrinsecus circ. 12–14 suberectis, utrinque subconcolora. Flores ignoti. Involucri rudimentum sub fructu persistens 3 mm. longum; pedunculus 3–4 mm. longus; bracteae caducae; pedicelli 1–3 umbellati, 17–20 mm. longi, laxe rufo-hirti. Drupa ovali-rotundata, 10 mm. longa, 7.5 mm. lata, rubra; putamen ovatum, 8: 6:4.5 mm., basi obsolete sulcatum ceterum laeve.

Szech'uan: *A. Henry* (No. 5780).

40. **Prunus hirtifolia** Koehne. See p. 209.

Sect. 2. PSEUDOCERASUS Koehne, *Deutsche Dendr.* 305 (1893).

Prunus subgen. *Cerasus* sect. *Yamasakura* Koidzumi in *Tokyo Bot. Mag.* XXV. 183 (1911).

Subsect. 7. HYPADENIUM Koehne, n. subsect.

41. **Prunus glandulifolia** Ruprecht & Maximowicz in *Mém. Sav. Étr. Acad. Sci. St. Pétersbourg*, IX. 87 (*Prim. Fl. Amur.*) (1859).

Amurland.

This species is still very incompletely known and its systematic position is uncertain. I have seen in Späth's Arboretum near Berlin a young plant that had not flowered.

Subsect. 8. SARGENTIELLA Koehne, n. subsect.

42. **Prunus pseudocerasus** Lindley in *Trans. Hort. Soc. Lond.* VI. 90 (1826). — Koehne in *Mitt. Deutsch. Dendr. Ges.* XVIII. 171 (1909), ubi descriptio completa.[1]

Cerasus Pseudocerasus G. Don in Loudon, *Hort. Brit.* 200 (1830).
Prunus Sieboldii Koidzumi in *Tokyo Bot. Mag.* XXV. 184 (1911).[2]

Prunus pseudocerasus, forma **Sieboldii** Maximowicz in *Bull. Acad. Sci. St. Pétersbourg*, XXIX. 102; in *Mél. Biol.* XI. 699 (1883), diagnosi emendanda. — Koehne in *Mitt. Deutsch. Dendr. Ges.* XVIII. 172 (1909).[3]

Prunus paniculata Ker in *Bot. Reg.* X. t. 800 (1824), excludenda diagnosi e Thunbergio desumta, non *Prunus paniculata* Thunberg, quae *Symplocos* spec.

Cerasus paniculata De Candolle, *Prodr.* II. 539 (1825), quoad tabulam Kerianam, sed excludendo synonymo Thunbergiano.

[1] Koidzumi considers *P. pseudocerasus* Lindley an entirely different species for the following reason: "*P. pseudocerasus* Lindley (non aliquot author. Europ. Amer. et Japonica) proved to be the Chinese Yung-to, and a species of the section *Eucerasus* from the illustration by Dr. Hayata, which is delineated from Lindley's original specimen in the herbarium of the Cambridge University." The following particulars of his description are especially important: Younger leaves on the petiole and on the veins beneath pilose or puberulent, glabrous above, doubly serrate. Flowers white; the corymbose racemes 4–5-flowered, pubescent, long or short peduncled; cupula broadly obconical, sepals ovate-elliptic, during anthesis horizontally spreading; style glabrous. Chinese name Yung-to. Central China, cultivated in Japan.

I have not yet seen a plant which agrees with this description. *Prunus pseudocerasus* Koidzumi certainly does not belong to the sect. *Eucerasus*, which is not represented in China. If Koidzumi is right, it seems difficult to explain why Lindley should have quoted plate 800 of the Botanical Register as a figure of his *P. Pseudocerasus*, for this plate certainly represents the plant which all later authors have called *P. pseudocerasus* and which I place here. Concerning the Chinese name Yung-to, it belongs, according to Lindley, not only to his *P. pseudocerasus*, but also to his *P. serrulata;* according to Wilson, the name Yung-to (Ying-to) is applied to every Cherry, while Ku-ying-to (bitter cherry) is applied to the species of the sect. *Padus*.

[2] *Prunus pseudocerasus*, var. *humilis* Makino in *Tokyo Bot. Mag.* VI. 52 (1892) = *Prunus pseudocerasus*, *a. spontanea*, subvar. *humilis* Makino, l. c. XX. 44 (1906). — Koidzumi in *Tokyo Bot. Mag.* XXIII. 182 (1909) = *Prunus pseudocerasus*, var. *jamasakura*, f. *humilis* Makino, l. c. XXII. 98 (1908) = *P. jamasakura*, *a elegans*, a *glabra*, f. *hortensis* Koidzumi, l. c. XXV. 185 (1911), does not seem to belong here, but I have not yet succeeded in finding out where to place it. It seems equally impossible to place or to refer to any other known species, *Prunus pseudocerasus*, var. *jamasakura*, f. *pubescens* Makino in *Tokyo Bot. Mag.* XXII. 98 (1908) = *P. jamasakura*, *a elegans*, b *pubescens* Koidzumi in *Tokyo Bot. Mag.* XXV. 185 (1911). The words "petiole spreadingly pubescent, pedicels spreadingly pubescent, calyx nearly glabrous" would lead me to think of *P. paracerasus* Koehne if it were not for "common peduncle short or very so" and "leaves sparsely pubescent on both sides." In *P. paracerasus* Koehne the peduncles are long and the leaves glabrous above. Of the pubescence of the style nothing is said by Makino.

[3] It seems doubtful if *P. pseudocerasus*, var. *Sieboldii* Matsumura in *Tokyo Bot. Mag.* XV. 101 (1901) really belongs here. Though the author says "petioli pedunculi pedicelli subvillosi," he also says, "calyx glaber, stylus glaber."

Cerasus Sieboldtii Carrière in *Rev. Hort.* 1866, 371.
Prunus Sieboldii Wittmack in *Gartenfl.* LI. 272 (1902).
Prunus pseudocerasus, γ *serrulata*, subvar. *Sieboldtii* Makino in *Tokyo Bot. Mag.* XXII. 102 (1908)?, excludenda certe var. *albida* Makino.
Prunus serrulata, α *serrulata*, f. *Sieboldtii* Makino in *Tokyo Bot. Mag.* XXIII. 74 (1909).
Prunus pseudocerasus, var. *typica*, subvar. *Sieboldii* Koidzumi in *Tokyo Bot. Mag.* XXIII. 182 (1909).
P. Pseudocerasus flore roseo pleno Hort. ex Koehne.
P. Pseudocerasus naden Hort. ex Koehne.

Known only with double flowers.

Introduced from China, 1819, by Samuel Brookes (Ker); 1822, by Reeves under the name of Yung-to (Lindley); from Japan by Fortune, distributed by Standish as Double Japanese Cherry; exhibited by Siebold as *Cerasus pseudo Cerasus rosea plena* (Carrière).

Cultivated because of its flowers in the gardens of Chifu, prov. Shantung; near the hill of Nan-shan, April 4, 1898, collected by *T. Takagaki* (No. 672), as indicated by Matsumura in *Tokyo Bot. Mag.* XIV. 137 (1900). I have seen cultivated specimens from Japan in Rijks-Herbarium, Leyden, *Siebold* (designated as *P. donarium* Siebold, flowering twigs, mixed with leafy twigs of *P. parvifolia*), from Yedo, April 14, 1876, *Hilgendorf* (mixed with *P. serrulata*). Japanese name, as given by Koidzumi, Yugatzu Sakra.

Prunus pseudocerasus, forma **Watereri** Koehne, l. c. 172 (1909).

An *Cerasus Wattererii*, cited by Lavallée, *Icon. Arb. Segrez.* 119 (1885), as synonym under *Cerasus Pseudocerasus*?
An *Cerasus Watereri* Goldring in *Garden*, XXXIII. 416, fig. p. 420 (1888)?
An *Prunus serrulata*, α *serrulata*, f. *Wattererii* Makino in *Tokyo Bot. Mag.* XXIII. 75 (1909)?

Cultivated in European gardens.

Prunus pseudocerasus, forma **virescens** Koehne, n. forma.

Prunus donarium Siebold in Rijks-Herbarium, Leyden, (pro parte, rami florentes, mixti cum ramis foliatis *P. parvifoliae*).

Petala circ. 20, ad 9 mm. longa, 6 mm. lata, bilobo-emarginata, viridescentia (secundum *v. Siebold*); stamina circiter 40, ad 7 mm. longa.

Japan, *v. Siebold.* — See also *P. serrulata*, f. *grandiflora* Wagner with greenish flowers.

43. **Prunus paracerasus** Koehne in Fedde, *Rep. Nov. Sp.* VII. 133 (1909); in *Mitt. Deutsch. Dendr. Ges.* XVIII. 170 (1909).

Introduced from Japan. Spontaneous specimens so far not seen.

44. **Prunus serrulata** Lindley in *Trans. Hort. Soc. London*, VII. 138 (1830). — Koehne in *Mitt. Deutsch. Dendr. Ges.* XVIII. 166 (1909) cum descriptione fusa.
Prunus Cerasus, β *flore simplici* Thunberg, *Fl. Jap.* 201 (1784).[1]
Prunus donarium Siebold in *Verh. Batav. Genoot.* XII. No. I. 68 (*Syn. Pl. Oecon.*) (1827), secundum Maximowicz, sed cf. supra sub *P. pseudoceraso.*
Prunus jamasakura Siebold, l. c. (1827), secundum Lavallée.
Cerasus serrulata G. Don in Loudon, *Hort. Brit.* 480 (1830).

[1] According to a photograph of the authentic specimen sent by Professor O. Juel.

Prunus Puddum Miquel in *Ann. Mus. Lugd.-Bat.* II. 90 (pro parte, non Wallich) (1865).
Prunus pseudocerasus, var. *jamasakura*, subvar. *glabra* Makino in *Tokyo Bot. Mag.* XXII. 93 (1809).
Prunus pseudocerasus, *a jamasakura*, forma *praecox* Makino, l. c. XXII. 98 (1908).
Prunus pseudocerasus, *a jamasakura*, a *glabra*, forma *praecox* Makino, l. c. XXII. 113 (1908). Mihi nondum satis nota. Flores simplices.
Prunus pseudocerasus, *γ serrulata*, subvar. *glabra* Makino, l. c. XXII. 101 (1908).
Prunus pseudocerasus, *β spontanea*, subvar. *hortensis* Koidzumi in *Tokyo Bot. Mag.* XXIII. 183 (1909).

Formae floribus plenis non satis notae:

Prunus Cerasus, *a flore pleno* Thunberg, *Fl. Jap.* 201 (1784).
Prunus serrulata Lindley, **cf. supra.**
Cerasus serrulata G. Don in Loudon, *Arb. Brit.* II. 701, fig. 407 (1833).
Cerasus Pseudocerasus Lavallée, *Icon. Arb. Segrez.*, 119, t. 36 (1885), (ubi citatur: *Cerasus Maeda* h.).
Prunus pseudocerasus, *γ serrulata*, subvar. *glabra*, forma *Fugenzo* Makino in *Tokyo Bot. Mag.* XXII. 73 (1908).
Prunus serrulata, *a serrulata*, forma *Fugenzo*, 1. *rosea* Makino, l. c. XXIII. 74 (1909).
Prunus jamasakura, *a elegans*, a *glabra* Koidzumi in *Tokyo Bot. Mag.* XXV. 185 (1911), utrum huc an ad *P. Sargentii* pertinet?
Prunus jamasakura, *β speciosa* Koidzumi l. c. 186 (1911).

Japan, Korea.

In collections *P. serrulata* is very often confused with *P. Sargentii* Rehder and less often with *P. pseudocerasus* Lindley or with *P. Herincquiana* Lavallée. It is said to have been introduced in 1822 from China according to Lindley, but I have seen no specimens from China. Chinese localities for it are sometimes given, but always with the quotation of synonyms which show a confusion between *P. pseudocerasus* Lindley and *P. serrulata* Lindley, so that these indications can not be safely used.

Prunus serrulata, f. **albida** (Makino) Koehne, n. comb.
Prunus pseudocerasus, *β hortensis flore simplici albo* Maximowicz in *Bull. Acad. Sci. St. Pétersbourg*, XXIX. 102; in *Mél. Biol.* XI. 699 (1883).
Prunus pseudocerasus Stapf in *Bot. Mag.* CXXXI. t. 8012 (1905), ad hanc vel ad sequentem formam pertinet, sed emendanda descriptione.
Prunus pseudocerasus, *γ serrulata*, subvar. *Sieboldii*, forma *albida* Makino in *Tokyo Bot. Mag.* XXII. 102 (1908).
Prunus serrulata, *a serrulata*, forma *albida* Makino, l. c. XXIII. 74 (1909).
Prunus serrulata, *a yashino* Koehne in *Mitt. Deutsch. Dendr. Ges.* XVIII. 167 (fine 1909).
Prunus pseudocerasus yoshino Hort. ex Koehne.

Prunus serrulata, f. **Lannesiana** (Carrière) Koehne in *Mitt. Deutsch. Dendr. Ges.* XVIII. 167 (1909).
Cerasus Lannesiana Carrière in *Rev. Hort.* 1872, 198; 1873, 45, 351, t.
Prunus pseudocerasus, *β hortensis flore simplici carneo* Maximowicz in *Bull. Acad. Sci. St. Pétersbourg*, XXIX. 102; in *Mél. Biol.* XI. 699 (1883).
Prunus serrulata, *a serrulata*, f. *Lannesiana* Makino in *Tokyo Bot. Mag.* XXIII. 74 (1909).
Prunus jamasakura, *β speciosa*, var. *nobilis* Koidzumi in *Tokyo Bot. Mag.* XXV. 187 (1911), ac ejusdem varietatis f. 1. *serrulata* Koidzumi l. c.

Prunus serrulata, f. **Kriegeri** Koehne in *Gartenfl.* LII. 2 (nomen nudum) (1902); in *Mitt. Deutsch. Dendr. Ges.* XVIII. 168 (1909).

Cerasus pendula Kriegeri F. Späth ex Koehne.

Prunus serrulata, f. **grandiflora** A. Wagner in *Gartenfl.* LII. 169. t. 1513a (1903). — Koehne in *Mitteil. Deutsch. Dendr. Ges.* XVIII. 168 (1909).

Prunus pseudocerasus, β hortensis flore pleno viridi, Maximowicz in *Bull. Acad. Sci. St. Pétersbourg*, XXIX. 102; in *Mél. Biol.* XI. 699 (1883.)

Prunus pseudocerasus, γ serrulata, subvar. *glabra*, forma *viridiflora* Makino in *Tokyo Bot. Mag.* XXII. 102 (1908).

Prunus serrulata, α serrulata, forma *viridiflora* Makino l. c. XXIII. 74 (1909), an huc pertinet?

Cerasus donarium Siebold in Rijks-Herbarium, Leyden.

Prunus pseudocerasus ukon Hort. ex Koehne. (See also *P. pseudocerasus* f. *virescens* Koehne with greenish flowers.)

Prunus serrulata, f. **ochichima** Koehne in *Mitt. Deutsch. Dendr. Ges.* XVIII. 169 (1909).

Prunus serrulata, α serrulata, forma *Fugenzo*, 2. *alborosea* Makino in *Tokyo Bot. Mag.* XXIII. 74 (1909), saltem e nomine japonico Shiro-fugen.

Prunus pseudocerasus ochichima Hort. ex Koehne.

Prunus pseudocerasus shirofugen Hort. ex Koehne.

Prunus serrulata, f. **hisakura** Koehne in *Gartenfl.* LI. 2, t. 1494 b (1902); in *Mitt. Deutsch Dendr. Ges.* XVIII. 169 (1909), excludendo synonymo *P. pseudocerasus "James H. Veitch."*

Cerasus caproniana flore roseo pleno Van Houtte in *Fl. des Serres*, XXI, 141, t. 2238 (1875) verisimiliter huc pertinet.

Cerasus serratifolia rosea Carrière in *Rev. Hort.* 1877, 889, t. fig. B, verisimiliter huc pertinet. It is said to have been sold at first under the name of *Cerasus Sieboldii rubra.*

Prunus pseudocerasus, β hortensis flore semipleno roseo, Maximowicz in *Bull. Acad. Sci. St. Pétersbourg*, XI. 699 (1883) forsan huc pertinet.

Prunus pseudocerasus hisakura Hort. ex Koehne.

Prunus pseudocerasus benifugen Hort. ex Koehne.

Prunus pseudocerasus "New Red." Hort. ex Koehne.

Prunus serrulata "W. Kou" Hort. ex Koehne.

P. jamasakura, β speciosa, var. *nobilis*, 2. *donarium* Koidzumi in *Tokyo Bot. Mag.* XXV. 187 (1911), verisimiliter huc v. ad aliam formam plenam pertinet.

Prunus serrulata, f. **Veitchiana** Koehne in Fedde, *Rep. Nov. Sp.* IX. 122 (1911).

Cerasus pseudocerasus "James Veitch," Gartenfl. LI. 497 (1902).

Prunus pseudocerasus "James H. Veitch" Hort.

Prunus serrulata, f. **mucronata** Koehne in *Mitt. Deutsch. Dendr. Ges.* XVIII. 170 (1909).

Prunus pseudocerasus, β hortensis flore pulcherrimo pleno candido, Maximowicz in *Bull. Acad. Sci. St. Pétersbourg*, XXIX. 102; in *Mél. Biol.* XI. 699 (1883) forsan huc pertinet.

Prunus Cerasus flore roseo pleno Hort. ex Koehne.

Prunus serrulata flore pleno Hort. ex Koehne.

Prunus serrulata, f. **shidare-sakura** Koehne in *Mitt. Deutsch. Dendr. Ges.* XVIII; 170 (1909).

Prunus pseudocerasus, β hortensis flore carneo suffuso, Maximowicz in *Bull.*

Acad. Sci. St. Pétersbourg, XXIX. 102; in *Mél. Biol.* XI. 699 (1883) huc forsan pertinet.

Prunus pseudocerasus shidare-sakura Hort. ex Koehne.

44 × 88 ? **Prunus affinis** Makino, = **Prunus pseudocerasus jamasakura × incisa?** Makino in *Tokyo Bot. Mag.* XXII. 99 (1908).

Japan.

Unknown to me. I do not think it probable that a hybrid exists between *P. serrulata* Lindley (= *P. pseudocerasus jamasakura* Makino) and *P. incisa*.

45. **Prunus Sargentii** Rehder in *Mitt. Deutsch. Dendr. Ges.* XVII. 159 (1908).— Koehne in *Mitt. Deutsch. Dendr. Ges.* XVIII. 164 (1909). — Hutchinson in *Bot. Mag.* CXXXVII. t. 8411 (1911).

Prunus puddum Miquel in *Ann. Mus. Lugd. Bat.* II. 90 (pro parte, non Wallich) (1865). Vidi in Herb. Leyden.

Prunus pseudocerasus, var. *sachalinensis* F. Schmidt in *Mém. Acad. Sci. St. Pétersbourg*, sér. 7, XII. No. II. 124 (*Reis. in Amurland*) (1868), verisimile huc referenda (exemplaria sunt fructifera).

Prunus pseudocerasus, α *spontanea* Maximowicz in *Bull. Acad. Sci. St. Pétersbourg*, XXIX. 102; in *Mél. Biol.* XI. 699 (pro parte) (1883). — Makino in *Icon. Pl. Jap.* 1, t. 1–2 (1900).

Prunus Mume, var. *crasseglandulosa* Miquel in Rijks-Herbarium, Leyden (a Maximowicz, l. c., ad *P. pseudocerasum* ducta).

Prunus pseudocerasus Sargent in *Garden and Forest*, X. 462, fig. 58 (non Lindley) (1897).

Prunus "spec. Nordjapan," Zabel in Beissner, Schelle & Zabel, *Handb. Laubholz-Ben.* 241 (1903).

Prunus pseudocerasus, β *borealis* Makino in *Tokyo Bot. Mag.* XXII. 99 (1908).

Prunus serrulata, β *borealis* Makino, l. c. XXIII. 75 (1909).

Prunus pseudocerasus, β *spontanea* Koidzumi in *Tokyo Bot. Mag.* XXIII. 182 (1909).

P. jamasakura, α *elegans*, c *compta* Koidzumi in *Tokyo Bot. Mag.* XXV. 186 (1911) ac ejusdem varietatis f. *hortensis* Koidzumi, l. c., num huc pertinent?

P. jamasakura, α *borealis* Koidzumi, in *Tokyo Bot. Mag.* XXV. 187 (1911), ac ejusdem varietatis f. *hortensis*, Koidzumi, l. c. 188.[1]

Korea, Saghalin, Japan.

I have not yet seen specimens from China. Later, probably, several forms will have to be distinguished. In flower the living plant is markedly different from *P. serrulata* Lindley, but it is often difficult to refer dried specimens to the one or the other species. Very closely allied to *P. Sargentii* Rehder is *P. tenuiflora* Koehne, the range of which, however, is so widely separated from that of *P. Sargentii*, that it seems better to consider *P. tenuiflora* for the present as a distinct species.

46. **Prunus tenuiflora** Koehne. See p. 209.

47. **Prunus Wildeniana** Koehne, n. sp.

Ramuli novelli glabri v. basi pilis solitariis conspersa, annotini cani v. cano-fuscescentes, vetustiores sordide fusci. Stipulae ignotae; petioli 6–11 mm. longi, laxe subaccumbenti-hirtuli v. subglabri, glandulas 1–2 medio v. apice gerentes; lamina e basi acuta v. rotundata anguste ovata v. late elliptica v. obovata, 6–8.5 cm. longa, 3–4.2 cm. lata, caudato-acuminata, argute, hinc inde duplicato-serrata,

[1] Where *P. jamasakura*, δ. *verecunda* Koidzumi in *Tokyo Bot. Mag.* XXV. 188 (1911) "umbellis sessilibus, pedicellis calycibusque puberulis, foliis petiolisque pilosis demum subtus glabriusculis" can belong, I have not yet ascertained.

dentibus parvulis, acutis v. vix acuminatis, glandula parva capitata terminatis, supra in costa v. etiam in nervis, interdum etiam in facie pilis longiusculis rigidulis conspersa, subtus in costa densiuscule, in nervis laxius rigidulo-pilosa, ceterum glabra v. subglabra, nervis utrinsecus circiter 10–14, subtus vix pallidior, membranacea. Involucra mox post anthesin omnia decidua; pedunculus 5–7 mm. longus; flores 2–4 umbellati; pedicelli 18–23 mm. longi, sparsim pilosi; cupula 4 mm. longa, glabra;[1] sepala ut videtur patentia, oblonga, 3 mm. longa, integra v. subintegra, parce tenere ciliata. Drupa juvenilis ovata, 8 mm. longa, 5.5 mm. lata; putamen laeve.

Hupeh, *A. Henry* (No. 5308).

I do not know of which species this plant could possibly be a variety. Therefore I have considered it as a distinct species.

At the request of Mr. Wilson this species has been named in compliment to Monsieur Wilden of the French Consular service in China, stationed at Chengtu in 1908, who rendered Wilson valuable assistance.

48. **Prunus Leveilleana** Koehne, n. sp.

Rami hornotini glabri. Petioli 11–18 mm. longi, glabri v. superne parce pilosi; glandulae 2–4 petiolo v. pro parte laminae basi insertae; lamina ovata v. latius angustiusve obovata, 4.5–8 cm. longa, 2.5–4.4 cm. lata, acuminata, dentibus parvulis, acutis v. subacuminatis serrata, supra in costa nervisque v. etiam in venis pilis conspersa, subtus in costa nervis venisque rigidulo-pilosa (juvenilis subtus dense pilosa), nervorum paribus 9–10. Involucra sub anthesi persistentia, 10–14 mm. longa; pedunculus 6–15 mm.; flores (1–)2, subpraecoces foliis simul ad 2 cm. longis; bracteae 5–6 mm. longae, herbaceae; pedicelli 8–23 mm. longi glabri; cupula 5.3 mm. longa anguste obconica, glabra; sepala 4.5 mm. longa, integra, glabra; petala rotundata, ad 11 mm. longa, emarginata; stamina 38, petalis dimidio breviora, stylus glaber. Drupa globosa, 3.5 mm. diam.; putamen subdepressum, 4.8: 5: 3.3 mm., sublaeve.

Korea: in the mountains of Mokhpo, March 1909, *T. Taquet* (No. 2519); in the same locality, May 1909, *Taquet* (No. 2517).

49. **Prunus Sontagiae** Koehne, n. sp.

Ramuli annotini (an etiam hornotini?) glabri. Foliorum sub anthesi petioli ad 5 mm. longi, hirti, lamina ad 3.3 cm. longa, in caudam angustam integram producta, setaceo-serrata, supra glabra, subtus in costa nervis venisque laxe hirta. Involucra sub anthesi persistentia, 10–11 mm. longa; pedunculus nullus v. inclusus; flores (1–)2–3 umbellati, coaetanei; bracteae subexsertae, spathulatae, herbaceae; pedicelli 10–15 mm. longi, inferne laxe superne densius villosi; cupula 5 mm. longa obconico-tubulosa, glabra v. subglabra; sepala 5 mm. longa, integra, glabra; petala late ovata, 11 mm. longa, subbiloba sinu angusto; stamina 35, petalis dimidio breviora; stylus glaber. Drupa ignota.

Korea: Seoul, near Tap Tong, May 5, 1895, *Miss A. Sontag.*

50. **Prunus mesadenia** Koehne, n. sp.

Ramuli novelli glabri. Petioli (folia sub anthesi tantum nota) 10–18 mm. longi, glabri, glandulas 1–3 medio v. paullo supra medium gerentes; lamina ovato-lanceolata, 4.5 cm. longa, 1.7 cm. lata, anguste acuminata, dentibus anguste triangularibus setaceo-serrata, supra pilis conspersa, subtus glabra v. barbata, nervorum paribus circiter 10. Involucra patentia, 1.75 cm. lata; pedunculus 6 mm. longus; flores 4 umbellati, coaetanei; bracteae 5 mm. longae; petioli circ. 19 mm. longi, glabri; cupula 6 mm. longa, obconico-tubulosa, glabra; sepala 6.5 mm. longa,

[1] I have been able to examine only one faded flower.

integra, glabra; petala orbicularia, 15 mm. longa, emarginata; stamina 41, petalis dimidio breviora; stylus glaber.

Nippon: Swasima, April 2, 1879, *J. Matsumura* (kindly sent to me by Professor Matsumura, under the name of *P. pseudocerasus, β spontanea*).

The species can be distinguished from *P. pseudocerasus* Lindley by the glabrous under side of the leaves, and from *P. serrulata* Lindley and *P. Sargentii* Rehder by the pubescent upper side of the leaves. As I do not know to which of these two species it could be referred as a variety, I consider it necessary to give it provisorily a specific name. From *P. parvifolia* Koehne it is distinguished by the quite different shape of the leaves.

51. **Prunus parvifolia** (Matsumura) Koehne, n. sp.

Prunus pseudocerasus, var. *parvifolia* Matsumura in *Tokyo Bot. Mag.* XV. 101 (1901).

Prunus pseudocerasus, var. *typica*, subvar. *parvifolia* Koidzumi in *Tokyo Bot. Mag.* XXIII. 182 (1909).

P. jamarakura, α elegans, a parvifolia Koidzumi in *Tokyo Bot. Mag.* XXV. 186 (1911).

Ramuli novelli glabri. Petioli 6–10(–13) mm. longi, dense villosi; glandulae plerumque 2 crassae petioli apici v. laminae basi insertae; lamina ovata v. rotundato-obovata v. obovata v. obovato-oblonga, 3–7.5 cm. longa, 1.5–4 cm. lata, acuminata, setaceo-serrata, supra pilis persistentibus conspersa, subtus glabra v. initio tantum tenere pilosa mox glabrata, nervorum paribus 7–10. Involucra pleraque sub anthesi decidua, paucissima persistentia circ. 1 cm. longa; pedunculus 4–10 mm. longus, glaber v. superne parce pilosus; flores (1–)2–3 umbellati v. subumbellati, coaetanei foliis simul 3–4 cm. longis; bracteae 4–7 mm. longae, herbaceae; pedicelli 13–26 mm. longi, glabri v. hinc inde parcissime pilosi; cupula 5.5 mm. longae, obconico-tubulosa, glabra; sepala 4 mm. longa, integra, ciliata; petala rotundata, 13 mm. longa 11 m. lata, bilobo-emarginata; stamina 32, petalis fere dimidio breviora; stylus glaber. Drupa globosa, 7 mm. diam.; putamen rotundatum, 6:6:4 mm., obsolete sulcatum.

Japan: Sterile twig, *F. von Siebold* (in the Rijks-Herbarium, Leyden, as *Cerasus donarium* Siebold, mixed with a flowering twig of *Prunus pseudocerasus virescens*). Cultivated in the Botanic Garden of the Agricultural College of the Imperial University of Tokyo, April 1908, *Koidzumi* (kindly sent to me by Matsumura as *P. pseudocerasus parvifolia* Matsumura and as *P. pseudocerasus typica parvifolia* Matsumura); from the same garden, a sterile twig, without date or collector; a sterile twig, June 22, 1901, *Komaba*.

Matsumura gives as the Japanese name Jugatsu-sakura, *i. e.* October-Cherry; he also states that the plant flowers in October. It is therefore strange that the flowering branches communicated to me are dated April. The species is very different from *P. pseudocerasus* Lindley. It might possibly be placed with *P. serrulata* Lindley or with *P. Sargentii* Rehder, but it differs so much from both that I must consider it a distinct species.

Prunus parvifolia, forma **aomoriensis** Koehne, n. forma.

Lamina foliorum sub anthesi jam 3.5–5.5 cm. longa, subtus versus costae basin densiuscule pubescens ceterum glabra. Involucra sub anthesi fere omnia persistentia, ad 15 mm. longa; pedicelli densiuscule pilosi v. superne glabri; cupula 5.5–6 mm. longa; sepala margine glabra; petala 15 mm. longa, 10 mm. lata.

Northern Nippon: Aomori, May 1898, *U. Faurie* (No. 2093).

52. **Prunus concinna** Koehne. See p. 210.

53. **Prunus Twymaniana** Koehne. See p. 211.

Subsect. 9. CONRADINIA Koehne, n. subsect.

54. **Prunus Conradinae** Koehne. See p. 211.
55. **Prunus Helenae** Koehne. See p. 212.
56. **Prunus saltuum** Koehne. See p. 213.
57. **Prunus pauciflora** Bunge in *Mém. Étr. Acad. Sci. St. Pétersbourg*, II. 97 (*Enum. Pl. Chin. Bor.*) (1835); verisimiliter etiam Matsumura in *Tokyo Bot. Mag.* XIV. 136 (1900).

Chili: Peking, *A. Tatarinow*, *E. Bretschneider*; Zuiwey-shan, *A. Bunge*. Shantung: Chefu, *Takagaki* teste Matsumura.

58. **Prunus Sprengeri**[1] Pampanini in *Nuov. Giorn. Bot. Ital.* XVIII. 230 (1911).

Rami floriferi cortice crasso (in sicco), glabri. Folia ignota. Involucra circ. 10 mm. longa; flores 2–3, praecoces; pedicelli sub anthesi involucra subaequantes, circ. 7 mm. longi; cupula 6 mm. longa, extus sub lente minutim glanduloso(?)-pubescens ut sepala oblongo-rotundata 4.5 mm. longa, 2.5 mm. lata, integra; petala suborbiculari-cuneata, 10 mm. longa, 9 mm. lata, integra nec emarginata, purpurascentia (ut videtur in sicco); stylus 11 mm. longus, e basi usque ultra medium dense et patenter hirsutus.

Hupeh: Oupanchan, alt. above 600 m., March 14–23, 1910, *C. Silvestri* (No. 3028, 3028[a]).

59. **Prunus yedoensis** Matsumura in *Tokyo Bot. Mag.* XV. 100 (1901). Stylo piloso sepalisque argute serrulatis a Nr. 53–57, insuper pedicellis, cupula sepalisque dense pilosis a Nr. 54–56 differt.

Generally cultivated in the gardens of Tokyo and said to have been introduced from the Island of Oshima, province Izu, as indicated by Matsumura.

Subsect. 10. SERRULA Koehne, n. subsect.

60. **Prunus majestica** Koehne, n. sp.

Prunus puddum Franchet, *Pl. Delavay*. 197 (non Roxburgh apud Brandis), (1889) verisimile huc ducenda.

Prunus cerasoides, var. *tibetica* Schneider in Fedde, *Rep. Nov. Sp.* I. 54 (pro parte), (1905).

Arbor 3–10-metralis, glaberrima; ramuli juveniles viriduli, vetustiores cani, nigrescentes v. fusci, crassi; gemmae 1–2 mm. longae. Stipulae angustissime lineares, 8–12 mm. longae, basi saepius pinnatifidae, glandulis marginalibus sessilibus v. longe fimbriato-stipitatis, magnis, oblongis; petioli 12–20 mm. longi, glandulas 2 apice gerentes; lamina e basi rotundata late elliptica v. inverse oblonga, foliorum minorum interdum ovata, (4–)8–12 cm. longa, (2.2–)3.2–4.8 cm. lata, brevius latiusque v. longius angusteque acuminata, breviter sed argute aequaliter, hinc inde subduplicato-serrulata, dentibus glandula parva capitata terminatis, nervis utrinsecus circiter 10–15, supra laete viridia, nitidula, subtus vix pallidiora, venarum reticulo tenero, membranacea. Involucra sub anthesi saepe magna ex parte decidua, 10–12 mm. longa; pedunculus 0–10 mm. longus; flores 1–3 umbellati, coaetanei foliis simul 5.5–6 cm. longis; bracteae cuneato-rotundatae, circiter 3 mm. longae, apice glanduloso-fimbriato-serratae, glandulis parvis oblongis, herbaceae, sub fructu persistentes v. deciduae; pedicelli 7–20 mm. longi, fructiferi ad 27 mm.

[1] I have not seen this species, which Pampanini considers allied to *P. hirtipes* Hemsley. On account of the not emarginate petals I have provisorily inserted it here.

longi, inferne tenues, superne sensim subincrassati; cupula 9–10 mm. longa, crasse campanulato-tubulosa, saepe rubescens; sepala erecto-patula, triangularia acuta, 4–5.5 mm. longa, integra, saepe rubescentia; petala ovato-rotundata, 15 mm. longa 10 mm. lata, subapiculata v. vix emarginata, in alabastro purpurea, dein rosea (v. alba?); stamina 32–34, petalis tertia v. quarta parte breviora, ad 10 v. 12 mm. longa; pistillum 18–22 mm. longum; stylus stamina aequans, glaber. Drupa rotundato-ovalis, 12–15 mm. longa, 8.5–12 mm. diam., nigrescens, sapore injucundo (unpleasant); putamen rotundato-ovatum, 10–12: 8–9: 6–6.5 mm., obtussimum, valide sulcatum et reticulato-foveolatum, carina tumida obtusa.

Yunnan: Mengtze, woods, alt. 1500–1600 m., *A. Henry* (Nos. 9411, 9411 A, 11469); Chu-yan, *A. Henry* (No. 9411 B).

The plant cited by Franchet as *P. puddum*, from Yunnan, woods below the hill of Hia-lo-pin, towards the north, above Lan-kong, alt. 2500 m., *J. M. Delavay*, very probably is *P. majestica*.

61. **Prunus serrula** Franchet, *Pl. Delavay.* 196 (1889).

Arbor excelsa; ramuli novelli tenere pubescentes, autumno glabri v. vix conspicue pulverulenti, annotini cani v. fusci submicantes; gemmae 3–4 mm. longae, oblongo-conicae, acutissimae. Stipulae ignotae; petioli 7–14 mm. longi, glabri, purpurascentes; glandulae plerumque 3–5 laminae basi insidentes; lamina e basi rotundata lanceolata, 6–10 cm. longa, 18–25 mm. lata, longe acuminata, breviter dense argute duplicato-serrata, dentibus (majoribus quam in varietate) glandula parva oblonga v. subulata terminatis, supra mox glabra, subtus in nervorum axillis barbata et secus costam infra medium paullulum pilosa, nervis utrinsecus circiter 11–16, papyracea. Flores ignoti; pedunculi fructiferi 5–7 mm., pedicelli 15–17 mm. longi, glabri, inferne tenues, superne saepius sensim subincrassati. Drupa subanguste ovalis, 12 mm. longa, 8 mm. lata, videtur rubra; putamen ovatum 11.5:7:5.5 mm. longum, obtusissimum, valide reticulato-costatum, carina complanata.

Yunnan: woods above Yen-tze-hay and Mo-so-yin, alt. 3300 m., July 17, 1889, *J. M. Delavay* (No. 3790); Franchet cites also: woods of Fang-yang-tschang above Mo-so-yin, alt. 3000 m., June 17, 1889, *J. M. Delavay* (No. 3773).

A complete description of this species is given to facilitate the comparison of the type with the var. *tibetica*.

Prunus serrula, var. tibetica (Batalin) Koehne. See p. 213.

Subsect. 11. PUDDUM Koehne, n. subsect.

62. **Prunus campanulata** Maximowicz in *Bull. Acad. Sci. St. Pétersbourg*, XXIX. 103; in *Mél. Biol.* XI. 698 (1883); cf. Miyoshi in *Jour. Coll. Sci. Tokyo*, XXVIII. 33 t. 2 (1910).

Prunus cerasoides Koidzumi in *Tokyo Bot. Mag.* XXIII. 181 (pro parte, non D. Don) (1909).

Fokien: *C. de Grijs* in Herb. Hance (No. 7046). Formosa: mountains, 600 m. alt., teste Miyoshi. Spontaneous perhaps in the Island of Oshima (Liu-kiu), teste Miyoshi. Cultivated in Japan teste Maximowicz.

Very near to *P. cerasoides* D. Don.

63. **Prunus Hosseusii** Diels in Fedde, *Rep. Nov. Sp.* IV. 289 (1907).

Siam; Doi Sutep, Hosseus (No. 260).

Perhaps to be united with *P. cerasoides* D. Don.

64. **Prunus cerasoides** D. Don, *Prodr. Fl. Nepal.* 239 (1825).

Prunus silvatica Roxburgh *Hort. Beng.* 92 (nomen nudum) (1814); *Fl. Ind.* II. 501 (1832).

Cerasus Phoshia Hamilton ex D. Don apud Seringe in De Candolle, *Prodr.* II. 535 (1825).

Cerasus Puddum Seringe in De Candolle, *Prodr.* II. 537 (1825)[1] — Roxburgh apud Wallich, *Pl. As. rar.* II., 37 t. 143 (1831).

Prunus Puddum Roxburgh ms. apud Brandis, *Forest Fl. Brit. Ind.* 194 (1874). — Brandis, *Indian Trees*, 279, fig. 121 (1906). — Hooker f., *Fl. Brit. Ind.* II. 314 (non Miquel, non Franchet) (1878).

65. **Prunus rufa** Steudel, *Nomencl. Bot.* II. 404 (1841) — Hooker f., *Fl. Brit. Ind.* II. 314 (pro parte) (1878).

Cerasus rufa Wallich, *Cat.* No. 721 (nomen nudum) (1829).

Eastern Himalaya: Sikkim.

66. **Prunus trichantha** Koehne, n. sp.

Prunus rufa Hooker f., *Fl. Brit. Ind.* II. 314 (pro parte) (1878).

Rami hornotini, saepe etiam annotini hirto-tomentosi, petioli circiter 10 mm. longi, glabri v. rufo-hirti, glandulae interdum 2, laminae basi insertae; lamina e basi acuminata oblongo-lanceolata v. lanceolata, 6.5–11.5 cm. longa 2.2–3.2 cm. lata, longe anguste acuminata, subtus in costa rufo-hirta ceterum sparsim strigosa v. subglabra, subtus in costa nervisque dense ceterum sparsim rufo-villosa. Involucra videntur 1 cm. longa (rudimentum adest); pedunculus subnullus; flores 2 umbellati, coaetanei foliis simul 3–7 cm. longis; bracteae 10–12 mm. longae, argute glanduloso-serrulatae; pedicelli 11–12 mm. longi, glabri, fructiferi incrassati; cupula 10–15 mm. longa, crasse tubulosa, dense subaccumbenti-rufo-hirta; sepala suberecta, ovato-triangularia, 4–5.5 mm. longa, parce v. frequentius glandulis marginata; petala[2] 8 mm. longa, 6 mm. lata, extus accumbenti-hirta; stamina circiter 45, majora ad 5 mm. longa; stylus glaber. Drupa ovalis, 11 mm. longa 8 mm. diam.; putamen ovale, 11:8 mm., obtusissimum, valide foveolatum.

Eastern Himalaya: Sikkim, Tonghoo, alt. 3000 m., May 29, 1862, *T. Anderson* (No. 466); Sikkim, temperate region, alt. 3000–4000 m., in Herb. Ind. Or. Hooker f. & Thomson, in part.

P. rufa is readily distinguished from this species by glabrous flowers and pubescent style as well as by the shorter and broader leaves.

Subsect. 12. MICROCALYMMA Koehne, n. subsect.

67. **Prunus Herincqiana** Lavallée. See p. 214.

Prunus Herincqiana, var. **biloba** (Franchet) Koehne, n. comb.

Prunus biloba Franchet in Herb. Paris.

Ramuli novelli inde a basi hirti. Foliorum lamina e basi late cuneata v. subito contracta late elliptica, 4–7.3 cm. longa, 1.8–4 cm. lata, brevissime serrata, supra glabra. Sepala 2.7 mm. longa. Drupa 7 mm. longa, 6 mm. diam. (in sicco).

China, *P. Farges* (No. 998).

[1] Don's name is older than that of De Candolle, as the latter quotes the *Prodromus Florae Nepalenis.*

[2] I have seen but one petal, which was not in its place, but sticking to the outside of the calyx. I am therefore not certain whether this petal does not belong to another plant.

In the type the shoots are hirsute only toward the apex; the leaves are oblong or oblong-lanceolate, usually 6–9, or even to 14 cm. long and 2.5–4(–5) cm. broad, pubescent on the midrib above and sometimes also on the lateral veins; the sepals are 3–4 mm. long; the fruit in the fresh state is 9 mm. in diameter. The petals of the type are two-lobed as in the variety.

68. **Prunus subhirtella** Miquel in *Ann. Mus. Lugd.-Bat.* II. 91 (1865), emendanda. — Hooker f. in *Bot. Mag.* CXXII. t. 7508 (1896). — Koehne in *Mitt. Deutsch. Dendr. Ges.* XVIII. 173 (1909). — Makino in *Tokyo Bot. Mag.* XXII. 115 (1908), etiam huc pertinere videtur.

Prunus subhirtella, var. *oblongifolia* Miquel, l. c., quoad ramos floriferos (rami steriles foliati ad *P. Buergerianam* Miquel e subgenere *Pado* pertinent).

Prunus incisa Maximowicz in *Bull. Sci. Acad. St. Pétersbourg*, XXIX. 99; in *Mél. Biol.* XI. 692 (non Thunberg) (1833); pro parte, saltem quoad synonymum *P. subhirtella* Miquel et e "corymbis praecocibus."

Prunus pendula, var. *ascendens* Makino in *Tokyo Bot. Mag.* VII. 103 (1893), an huc pertinet?

Prunus Herincquiana, var. *ascendens* Schneider, *Ill. Handb. Laubholzk.* I. 608 (1906).

Prunus itosakra, β *subhirtella* Koidzumi in *Tokyo Bot. Mag.* XXIII. 180 (1908), est eadem quae *P. subhirtella* Makino.

The examination of all the specimens in the Rijks-Herbarium at Leyden designated by Miquel himself as *P. subhirtella* has given the following result: there are four flowering and five leafy branches of the plant figured later by Hooker as *P. subhirtella*, one flowering and one leafy branch of *P. Herincquiana* Lavallée and four leafy branches of *P. pendula* Maximowicz. The variety *oblongifolia* Miquel consists of six flowering branches of typical *P. subhirtella* and four leafy branches of *P. Buergeriana* Miquel. Therefore there can be no doubt that Miquel intended the name *P. subhirtella* for the same plant which later Hooker considered *P. subhirtella*, but that he added to his *P. subhirtella* by mistake wrongly determined branches of other species. I therefore think that the name *P. subhirtella* with the authority of Miquel can be retained for the species in question. Although Maximowicz refers *P. subhirtella* as a synonym to *P. incisa* Thunberg, no reason for this is apparent, as none of Miquel's specimens belongs to *P. incisa*.

Japan: I have seen quite a number of specimens without locality or collector, also specimens collected by *Siebold*, *Buerger* and, as far as I could make it out, by *Sahsabro* (Miquel gives Saksako as the Japanese name of the plant). Furthermore specimens from Hondo, environs of Hirosaki, May 27, 1905, *U. Faurie* (No. 6700); Mt. Shikosan, May 3. 1907, *U. Faurie* (No. 100).

Prunus subhirtella, var. **fukubana** Makino in *Tokyo Bot. Mag.* XXII. 118 (1908), ab autore dicitur forsan *Prunus Itosakura*, var. *ascendens* Makino × *Prunus subhirtella* Miquel.

Prunus itosakra, γ *ascendens*, subvar. *amabilis* Koidzumi in *Tokyo Bot. Mag.* XXIII. 181 (1909) an eadem?

Flores plus minus pleni, purpurascenti-rosei (Makino), v. plerumque pleni albo-rosei (Koidzumi). "Ovaries 1–2 in a flower" (Makino).

In the Herbarium at Leyden I have seen a branch with double flowers belonging to *P. subhirtella*. It was originally labelled *Cerasus itosakura flore semipleno*, and then determined by Miquel as *P. subhirtella*. The number of petals was 13–14, about 11 mm. long and 7 mm. broad, the number of stamens 61 and of pistils 2. The style was glabrous; it is also in typical *P. subhirtella* sometimes nearly glabrous. Makino describes the style of his var. *fukubana* as "thinly pilose."

69. **Prunus pendula** Maximowicz in *Bull. Acad. Sci. St. Pétersbourg*, XXIX. 98; in *Mél. Biol.* XI. 690 (1883), quoad diagnosin, sed exemplaribus pluribus authenticis ad species alias ducendis; cf. Koehne in *Mitt. Deutsch. Dendr. Ges.* XVIII. 174 (1909), ubi citantur icones.

Prunus Itosakura Siebold in *Verh. Batav. Genoot.* XII. No. I. 68 (*Syn. Pl. Oecon.*) (nomen nudum) (1830).—Makino in *Tokyo Bot. Mag.* XXII. 114 (1908).

Cerasus pendula flore roseo Siebold, *Cat.* V. 31 (1863), teste Maximowicz.

Cerasus pendula rosea Dombrain, *Floral Mag.* X. t. 536 (1871).

Prunus subhirtella, var. *pendula*, Tanaka, *Useful Pl. Jap.* 153, fig. 620 (1895).

Cerasus Itosakura Siebold in Herb., teste Maximowicz, l. c.

Cerasus Herincquiana Lavallée, *Icon. Arb. Segrez.* 117 (1885), forsan pro parte (non tab. 35!).

Prunus Miqueliana Schneider, *Ill. Handb. Laubholzk.* I. 609 (non Maximowicz) (1906).

Prunus Herincqiana Schneider, l. c. 608, quoad synonyma nonnulla.

Cerasus pendula Siebold in herb., teste Kochne, l. c.

Prunus cerasus pendula flore roseo Hort., teste Koehne, l. c.

Prunus itosakra, a pendula Koidzumi in *Tokyo Bot. Mag.* XXIII. 180 (1909).

Japan. I have seen only a few Japanese specimens without locality or collector and one specimen collected by Siebold, all in the Herbarium at Leyden and determined by Miquel erroneously as his *P. subhirtella*.

70. **Prunus taiwaniana** Hayata in *Jour. Coll. Sci. Tokyo*, XXX. 87 (1911).

Formosa. Not known to me. Hayata says; "somewhat like *P. pendula*, but distinguishable by the smaller flowers with narrower and more deeply emarginate petals."

71. **Prunus microlepis** Koehne, n. sp.

Rami annotini tenues (an penduli?), pallide fuscescenti-cani, glabri; gemmae circiter 3 mm. longae, anguste ovato-conicae, glabrae, solitariae v. ternae tunc media foliifera, laterales floriferae (ut in *Microceraso*). Folia sub anthesi 5–7 mm. longa; dentes sub lente valida longiores quam latae, multae bifidae, omnes obtusae omnino eglandulosae, saepe incurvae; lamina supra pilis rigidulis conspersa, subtus nonnisi in nervis pilosa. Involucra parva, circiter 5 mm. longa; pedunculus 0–5 mm. longus; flores (1–)2 umbellati, praecoces; bracteae spathulato-rotundatae, circiter 3–4 mm. longae, glanduloso-fimbriato-serratae, herbaceae; pedicelli 10–16 mm. longi, glabri v. pilis paucis tenerrimis conspersi; cupula 5 mm. longa, campanulato-tubulosa, glabra v. subglabra; sepala ovata obtusa, 3.5 mm. longa, integra; petala rotundata, 7 mm. longa 6 mm. lata, leviter emarginata; stamina 35, petalis subbreviora, ad 5 mm. longa; stylus stamina paullo superans, glaber.

Hondo: prov. Senano, a. 1864, *Tschonoski* (Maximowicz, Iter II.), determined by Maximowicz as *P. pendula*, mixed with var. *ternata*.

Differs from *P. pendula* Maximowicz by the obtuse serratures of the leaves, the shorter and broader sepals, the small petals, the more numerous stamens slightly shorter than the petals and the glabrous style.

Prunus microlepis, var. **ternata** Koehne, n. var.

Rami intense fusci; gemmae ternatim ramulos vix 3 mm. longos terminantes, media foliifera, laterales floriferae. Flores solitarii; pedicelli 5–6 mm. longi; cupula 6 mm.; sepala late ovata, hinc inde intus pilosa tenereque breviter ciliata, 2 mm. longa; petala 8 mm. longa 6 mm. lata; stamina 41, ad 6 mm. longa; stylus staminibus subbrevior.

Hondo: *Tschonoski* (with the type, determined by Maximowicz as *P. pendula*).

Subsect. 13. CERASEIDOS (Siebold & Zuccarini) Koehne, n. subsect.

Ceraseidos Siebold & Zuccarini in *Abh. Akad. Münch.* III. 743 t. 5 (1843), sensu ampliato.

Ser. 1. PHYLLOPODIUM, n. ser.

72. **Prunus setulosa** Batalin in *Act. Hort. Petrop.* XII. 165 (1892); in *Gartenfl.* XLII. 330 (1892).

Eastern Kansu: near the monastery of Dshoni, May 31, 1885; in the high pass between Minping and Wuping, July 3, 1885, *G. N. Potanin* (not seen).

73. **Prunus phyllopoda** Koehne, n. sp.

Rami tenues, annotini pilorum residuis hirtuli, pallide fuscescentes, vetustiores glabri, fusci. Folia juvenilia: stipulae anguste lineares, parvae, parce glanduloso-fimbriatae; petioli 2–8 mm. longi, hirsuti; glandulae saepe 2–4 laminae basi insertae, stipitatae; lamina e basi rotundata late ovata, circ. 3 cm. longa 2 cm. lata, subacuminata, inciso-duplicato-serrata, dentibus latis, cuspidatis, glandula nulla v. parum conspicua terminatis, utrinque densiuscule hirsuta, nervis utrinsecus circiter 7, subtus vix pallidior. Involucra circiter 5 mm. longa; pedunculus ad 15 mm. longus, villosus; flores 1–2 umbellati, coaetanei; bracteae 2–4, infimis sterilibus, euphyllis consimiles, infimis breviter petiolatis ad 20 mm. longis, superioribus 13–6 mm. longis; pedicelli 10 mm. longi, tenere villosi; cupula 6.5 mm. longa, 3.5 mm. diam., suburceolata-tubulosa, dense villosa; sepala suberecta, anguste oblongo-triangularia acuta, 3.5 mm. longa, integra, ciliata, utrinque laxe villosa; petala obovata, 5 mm. longa 4 mm. lata, haud emarginata, leviter eroso-crenulata; stamina 32, petalis paullo breviora, ad 3.5 mm. longa; pistillum 9 mm. longum; stylus staminibus subbrevior, usque ad duas tertias partes dense lanato-villosus. Drupa ignota.

Northern Shensi: Ken-y-shan (Lao-y-shan), May 2, 1899, *G. Giraldi*.

74. **Prunus canescens** Bois. See p. 215.

75. **Prunus Veitchii** Koehne, n. sp.

Frutex 0.6–2-metralis; rami annotini cani, glabri, vestustiores fusci v. cinereo-fusci. Folia juvenilia sub anthesi tantum nota; lamina ad 22 mm. longa, 8 mm. lata, longe acuminata, inciso-serrata dentibus bifidis acuminatis eglandulosis, supra glabra, subtus praesertim in nervis pilis accumbentibus rigidulis obsita. Involucra 8–10 mm. longa; pedunculus nullus; flores 1–3 umbellati, subpraecoces; bracteae subexsertae, euphyllis consimiles, subpetiolatae; pedicelli 8–13 mm. longi, glabri; cupula 8–10 mm. longa, e basi acuta tubulosa v. leviter obconica, glabra; sepala patentia, ovata v. oblonga, acuta, 4.5–5 mm. longa, integra, glabra; petala ovata, 10 mm. longa, 7 mm. lata, emarginata; stamina 37, petalis subaequilonga, ad 9 mm. longa; stylus stamina aequans v. 3 mm. longior, glaber.

Western Hupeh: Chang-yang, woods, alt. 2000 m., April 4, 1900, *E. H. Wilson* (Veitch Exped. No. 66).

The correct place of this species in the genus is not at all certain. When completely known, it may be necessary to transfer it to another group.

Ser. 2. DROSERINA, n. sect.

76. **Prunus Giraldiana** Schneider in Fedde, *Rep. Nov. Sp.* I. 65 (1905).
Northern Shensi: Quen-tou-shan, May 5, 1898, *G. Giraldi* (No. 3789).

77. **Prunus droseracea** Koehne. See p. 215.

Ser. 3. Oxyodon, n. ser.

78. **Prunus trichostoma** Koehne. See p. 216.
79. **Prunus latidentata** Koehne. See p. 217.
80. **Prunus micromeloides** Koehne. See p. 218.
81. **Prunus oxyodonta** Koehne. See p. 218.
82. **Prunus glyptocarya** Koehne. See p. 219.
83. **Prunus podadenia** Koehne, n. sp.

Frutex 2.3 m. altus; rami hornotini laxe hirti v. superne subglabri, fusci, vetustiores glabri, cano-fuscescentes; gemmae 2 mm. longae. Stipulae lanceolatae, basi saepe hinc pinnatifidae, 5–8 mm. longae, glanduloso-fimbriatae, pleraeque persistentes; petioli 8–15 mm. longi, superne breviuscule hirti v. glabri; glandulae 1–2, petioli apice v. laminae basi insertae, stipitatae, 0.5–1 mm. longae; lamina e basi acuta v. rotundata ovato-oblonga, oblonga v. inverse oblonga, 5–8.5 cm. longa, 2.5–4 cm. lata, caudata, inciso-duplicato-serrata, dentibus plerisque latioribus quam longis, acutissimis v. argute acuminatis, glandula punctiformi terminatis, supra pilis rigidulis conspersa, subtus in costa nervisque densiuscule ceterum laxe breviter hirta, nervis utrinsecus 10–16, laete viridis, subtus parum pallidior, papyracea. Flores ignoti. Pedunculus fructifer 8–12 mm. longus, basi hirtus; bracteae 3, rotundatae v. obovato-rotundatae circ. 4 mm. longae, glanduloso-fimbriatae glandulis ovatis, herbaceae, persistentes; pedicelli fructiferi 1–2 umbellati v. racemosi, 17–24 mm. longi, glabri, sursum sensim incrassati. Drupa globoso-ovalis, circiter 10 mm. longa, in sicco pallida; putamen ovale, 7.5:5.5:4 mm., valide subreticulato-costatum, carina plena.

Western China: mountains, alt. 3000 m., July 1903 *E. H. Wilson* (Veitch Exped. No. 3525[a]).

This species seems very near to *P. glyptocarya* Koehne, but it has shorter hairs on the under side of the leaves, persistent bracts and ovoid fruits and stones.

84. **Prunus lobulata** Koehne. See p. 220.
85. **Prunus stipulacea** Maximowicz in *Bull. Acad. Sci. St. Pétersbourg*, XI. 689 (1883).

Kansu: Tangut Region, *N. M. Prewalski* (Nos. 19, 187, 338, and some specimens without number).

86. **Prunus pleuroptera** Koehne. See p. 221.
87. **Prunus Zappeyana** Koehne. See p. 221.

Prunus Zappeyana? var. **subsimplex** Koehne. See p. 222.

88. **Prunus incisa** Thunberg, *Fl. Jap.* 202 (1784); sed vix Maximowicz in *Bull. Acad. Sci. St. Pétersbourg*, XI. 692 (1883); cf. supra No. 66. *Prunus subhirtella* Miquel.

Cerasus incisa Loiseleur, *Nouveau Duhamel*, V. 33 (1812).
Ceraseidos apetala Miquel in *Ann. Mus. Lugd.-Bat.* II. 93 (1865), pro parte, nempe quoad synonymum *Prunus incisa* Thunberg.

Japan. I have seen a specimen from *Thunberg* in the Rijks-Herbarium, Leyden (determined by Miquel erroneously as *Ceraseidos apetala*), and specimens from *Siebold* (determined also as *Ceraseidos apetala*). Without locality, *J. J. Rein;* summit of Mount Komagatake, collector not indicated; Ohyama, Sagami, May 18, 1900, *J. Matsumura* (kindly sent to me under the name of *P. incisa*). Hondo: Swagisan, prov. Idzu, June 12, 1883, *J. Matsumura* (sent to me as *P. incisa*); Fusi-San, June 10, 1898, *U. Faurie* (No. 2099); Daisen, May 28, 1899, *U. Faurie* (No. 3160).

Ser. 4. Euceraseidos, n. ser.

89. **Prunus caudata** Franchet, *Pl. Delavay.* 196 (1889).

Yunnan: woods near the hill of Yen-tze-hay, above Lan-kong, May 24, 1887, *M. J. Delavay* (No. 2658).

90. **Prunus iwagiensis** Koehne, n. sp.

Rami annotini glabri. Stipulae angustissime lineares, ad 6 mm. longae, margine glandulosae; petioli circa 6 mm. longi, glabri, glandulas 1–2 apice gerentes; lamina e basi rotundata suborbicularia v. obovata, ad 2.5 cm. longa (sub anthesi), caudata, inciso-duplicato-serrata, dentibus primariis manifeste longioribus quam latis, medio saepe subdilatatis, secundariis subangustis, obtusiusculis subcuspidatis, glandula capitata terminatis, supra sparsim pilosa, subtus in nervis venisque validioribus parce v. uberius hirta. Involucra 6–9 mm. longa; pedunculus nullus; flores 1–2 umbellati, coaetanei; bracteae interdum subexsertae, herbaceae; pedicelli 11–15 mm. longi, glabri; cupula 5–6 mm. longa, subanguste turbinata, glabra; sepala erecto-patula, ovata acuminata, 4–5 mm. longa, integra v. subintegra, glabra; petala rotundata, 10 mm. longa 9 mm. lata, vix emarginata; stamina 32–35, petalis dimidio breviora, ad 5.5 mm. longa; stylus glaber.

Hondo: woods of Iwagi, May 13, 1905, *U. Faurie* (No. 6699).

Prunus iwagiensis differs from all the Japanese species of the group *Euceraseidos* in the turbinate cupula, and from most of them also in the rather large petals.

91. **Prunus nipponica** Matsumura in *Tokyo Bot. Mag.* XV. 99 (1901).

Prunus Miqueliana Koidzumi in *Tokyo Bot. Mag.* XXIII. 184 (non Maximowicz) (1909).

Prunus Ceraseidos Maximowicz in *Bull. Acad. Sci. St. Pétersbourg,* XXIX. 103; in *Mél. Biol.* XI. 698 (pro parte) (1883).

Prunus apetala, typica Schneider, *Ill. Handb. Laubholzk.* I. 608 (1906), huc pertinere videtur.

Japan: Nikkō, June 12, 1901, *Matsumura* (sent to me as *P. Miqueliana*); Nikkō, Simotsuke, June 12, 1901, *Yabe* (sent to me as "*P. Miqueliana* = *P. nipponica*"); Nikkō, Konseitōge, July 22, 1883, *Matsumura* (sent as *P. Miqueliana*); Owatesan, Rikuchu, June 26, 1907, *Nakahara*; province Echigo, August 1905, *H. Shirasawa* (sent as *P. Miqueliana*); woods of Takayu, June 24, 1904, *U. Faurie* (No. 6052); Fusi-San, 1864, *Tschonoski* (as *P. ceraseidos*, var. *glabrata* Maximowicz; other specimens from *Tschonoski* belong to the very different *P. Tschonoskii* Koehne); Ontake, 3000 m. alt., July 1875, *J. J. Rein.*

This species differs from all other species of the group *Ceraseidos* in the bifid petals; they are 10–11 mm. long, 4–5 mm. broad; the very narrow incision is 3 mm. deep and the two lobes are acute.

92. **Prunus autumnalis** Koehne, n. sp.

Prunus subhirtella, var. *autumnalis* Makino in *Tokyo Bot. Mag.* XXII. 117 (1908) ex descriptione eadem videtur quae species mea, sed flores dicuntur plus minus pleni rosei.

Rami annotini glabri, tenues, ochraceo-fuscescentes v. cani; gemmae 3–4 mm. longae, nitidae. Stipulae mihi ignotae; petioli circa 9 mm. longi, dense hirti, glandulas 2 validas gerentes; lamina e basi late cuneata ovato-oblonga, oblonga v. oblongo-lanceolata, 3.4–5.7 cm. longa, 1.2–2.3 cm. lata, sensim acuminata, inciso-duplicato-serrata, dentibus vix acuminatis, glandula capitata terminatis, supra pilis conspersa, subtus in nervis densiuscule ceterum sparsim pilosa, nervis utrinsecus 7–8. Involucra 4 mm. longa, 3 mm. lata; pedunculus nullus; bracteae in-

clusae, raro subexsertae, oblongae, 5 mm. longae, serrulatae, herbaceae; flores 1–2 umbellati, autumno florentes; pedicelli 4–7 mm. longi, parcissime pilosi; cupula 4 mm. longa, tubuloso-campanulata, glabra v. parcissime pilosa; sepala oblonga acutiuscula, 3.5 mm. longa, minutim dense serrulata; petala anguste ovata, 9 mm. longa, 5 mm. lata, vix emarginata; stamina 29, petalis multo breviora, ad 3 mm. longa; stylus staminibus 2–3 mm. longior, glaber ("thinly pilose," Makino). Drupa ignota.

Hondo: Yedo, autumno, *Wichura* (No. 1147*b*).

Belongs according to the leaves to sect. *Euceraseidos*, though it much resembles in the shape of the cupula and the sepals *P. pendula* Maximowicz.

93. **Prunus kurilensis** Miyabe apud Takeda in *Tokyo Bot. Mag.* XXIV. 11 (1910).

P. ceraseidos, var. *kurilensis* Miyabe, in *Mem. Boston Soc. Nat. Hist.* IV. 226 (*Fl. Kurile Isl.*) (1890).

P. incisa, var. *kurilensis* Koidzumi in *Tokyo Bot. Mag.* XXIII. 184 (1909).

I have seen no specimen of this species. In the Berlin Botanic Garden a plant is cultivated received from Sapporo aus *P. kurilensis* which has not yet flowered. It exhibits the following characters:

Rami hornotini autumno glabri, hinc pallidi, hinc purpureo-fusci, vetustiores nigrescenti-fusci; gemmae 1.5–2 mm. longae, rotundatae v. ovatae. Stipulae circa 3–4 mm. longae, ovatae vel oblongae, glanduloso-serratae, pro parte persistentes; petioli 5–14 mm. longi, breviter patentim villosi; glandulae saepe 1–2, petioli apici vel laminae basi insertae; lamina e basi acuta vel rotundata rotundato-ovata v. latius angustiusve obovata, 4–7.5 cm. longa, 2.4–4.2 cm. lata, lobulato-duplicato-serrata, lobulis latioribus quam longis vel sublongioribus quam latis, dentibus subacuminatis, glandula capitata terminatis, supra sparsim strigosa vel glabrata, subtus in costa, vix in nervis hirsuta v. glabrata, supra laete viridis, subtus paullo pallidior.

The leaves resemble strongly those of *P. nipponica* Maximowicz. The Berlin plant differs from the original description in the narrower leaves, which are described by Miyabe as orbicular to obovate, 7–8 cm. long and 5.2–6 cm. broad.

94. **Prunus nikkoensis** Koehne, n. sp.

Rami annotini pallide cani, nigro-punctulati, glabri, vetustiores nigro-fusci. Folia valde juvenilia tantum nota: glandulae 1–2 petioli apici insertae; lamina ovata, 1.5–2 cm. longa, caudata, profunde inciso-duplicato-serrata, dentibus duplo longioribus quam latis, obtusiusculis subcuspidatis, glandula capitata terminatis, supra undique, subtus in nervis pilis longis albis plus minus dense obtecta. Involucra 7–9 mm. longa, 5–9 mm. lata, erecto-patula; pedunculus nullus; flores 2–4 umbellati, praecoces v. subpraecoces; bracteae inclusae; pedicelli 6–13 mm. longi, glabri; cupula 5–6 mm. longa, subanguste campanulato-tubulosa v. leviter obconica, glabra; sepala ovata v. ovato-oblonga, subacuminata, 2–3.5 mm. longa, integra, glabra; petala ovata v. obovata, 6.5–7 mm. longa, 4 mm. lata, emarginata sinu triangulari-patente; stamina 31–34, petalis breviora, ad 3.6–4 mm. longa; stylus staminibus 2.5–4 mm. longior, glaber. Drupa ignota.

Japan: without date and locality, *H. Shirasawa* (sent to me as *P. pseudocerasus spontanea*); Nikkō, May 7, 1898, *U. Faurie* (No. 2096, determined by Shirai as *P. ceraseidos*, var. *glabrata* Maximowicz).

This species is very distinct from *P. pseudocerasus* Lindley in the precocious flowers and in the quite different serratures of the leaves and their glands. It is also readily distinguished from "*P. ceraseidos glabrata* Maximowicz" (which is prob-

ably *P. nipponica* Matsumura) by the only slightly emarginate and much smaller petals.

95. **Prunus Miqueliana** Maximowicz in *Bull. Acad. Sci. St. Pétersbourg*, XI. 692 (non Schneider) (1883).

Japan: Nippon, province Senano, a. 1864, *Tschonoski*. (Maximowicz cites "in silvis subalpinis Nippon, Nikkō.")

There are no indications in the Rijks-Herbarium at Leyden that *P. incisa* Miquel belongs here in part, as Maximowicz believed. *Prunus Miqueliana* is apparently very near *P. Tschonoskii*, but differs in the very slight pubescence of the calyx and of the much shorter pedicels, in the shorter cupula and more numerous (34) stamens.

96. **Prunus Tschonoskii** Koehne, n. sp.

Prunus ceraseidos Maximowicz in *Bull. Acad. Sci. St. Pétersbourg*, XXIX. 103; in *Mél. Biol.* XI. 698 (pro parte) (1883).

Prunus apetala, var. *iwozana* Schneider, *Ill. Handb. Laubholzk.* I. 608 (1906) huc forsan pertinet.

Rami hornotini dense hirti, demum saepe glabri, annotini glabri, pallide cani, dein cinerei v. nigricantes; gemmae vix 1.5 mm. longae, glabrae. Stipulae 3–7 mm. longae, lineares, pectinato-pinnatifidae; petioli 2–8 mm. longi, dense hirsuti, glandulis 1–2 petioli apici v. laminae basi insertis; lamina versus basin obtusam sensim angustata, obovata v. obovato-oblonga, 3.5–10 cm. longa, 1.5–5 cm. lata, caudata, simpliciter ac hinc inde subduplicato-inciso-crenata, dentibus obtusis cuspidatis, glandula capitata terminatis, supra pilis longiusculis accumbentibus obsita, subtus dense longiuscule villosa v. inter nervos glabrior, nervis utrinsecus 6-10. Involucra circa 1 cm. longa; pedunculus 2–11 mm. longus; flores 1–3 umbellati, coaetanei foliis simul 3–5.5 cm. longis; bracteae 3–5 mm. longae; pedicelli 22–35 mm. longi, dense v. densiuscule villosiusculi; cupula 10–12 mm. longa, crasse tubulosa, dense pubescenti-villosiuscula; sepala ovata acuta, 3–4 mm. longa, argute serrulata, extus pilosa; petala rotundata, 7–8 mm. longa, emarginata; stamina circa 25, petalis dimidio breviora, ad 3.5 mm. longa; stylus basi parce villosus. Drupa globosa, 9 mm. diam., nigra (ut videtur); putamen ovatum, 6.3:4.5:4 mm., obsoletissime sulcatum.

Japan: Nippon, province Senano, a. 1864, *Tschonoski* (as "*P. ceraseidos* Maximowicz;" other specimens belong to *P. nipponica*); Niohōsan, Nikkō, June 14, 1901, *Yabe*; Sanjūsan, Nikkō, April 12, 1901, *Yabe*; Nakimusi-Sando, Nikkō, June 13, 1901, *Yabe* (the specimens by Yabe were sent to me as *P. apetala*).

97. **Prunus apetala** (Siebold & Zuccarini) Franchet & Savatier, *Enum. Pl. Jap.* II. 329 (1879), (non Zabel, cf. *P. Maximowiczii*, No. 9).

Ceraseidos[1] *apetala* Siebold & Zuccarini in *Abh. Akad. Münch.* III. 743. t. 5 (1843).

Prunus ceraseidos Maximowicz in *Bull. Acad. Sci. St. Pétersbourg*, XXIX. 103; in *Mél. Biol.* XI. 698 (pro parte) (1883).

As this species is usually confused with others I add here a description drawn from the type specimen in the Rijks-Herbarium at Leyden.

Ramuli novelli glabri, annotini pallide cano-ochracei, vetustiores fuscescenticani; stipulae 3.5–10 mm. longae, saepe basi pectinato-pinnatifidae, glandulosofimbriatae; petioli ad 4 mm. longi (sub anthesi), dense villosi, saepius 1–2 glandulosi; lamina obovato-oblonga v. inverse oblonga, 2.8–5.8 cm. longa, 1.5–2.5 cm.

[1] Schneider quotes *Cerasaidos apetala* and *Prunus cerasaidos*.

lata, caudata, lobulato-duplicato-crenata, dentibus sat angustis, obtusis cuspidatis, glandula capitata terminatis, supra accumbenti-villosa, subtus in nervis densissime, inter nervos laxius longe hirto-villosa, nervis utrinsecus 8–10. Involucrum circa 6 mm. longum; pedunculus nullus; flores 1–2 umbellati, coaetanei foliis simul ad 4 cm. longis; bractea semiexserta; pedicelli 12–22 mm. longi, laxe hirto-villosi; cupula 8 mm. longa, crasse tubulosa, in nervis parce pilosa, purpurea; sepala ovata, 4.5–4.5 mm. longa, minutissime parce serrulata, extus parce pilosa, intense purpurea; petala nulla!; stamina 26, ad 4 mm. longa; stylus staminibus 5 mm. longior, basi pilis longis paucissimis obsitus.

Japan: In the Herbarium at Leyden are two sheets, on both *P. apetala* is mixed with *P. incisa* Thunberg; the labels can not be referred with certainty to either of the two species.

A foliiferous branch kindly sent me by Matsumura as *P. apetala* seems to belong here:

Ramus glaber, fuscus; gemmae 4 mm. longae, glabrae. Petioli 6–13 mm. longi; lamina obovata ad obovato-oblonga, 4–8.5 cm. longa, 2–4 cm. lata, dentibus primariis pro parte ad 7 mm. longis, supra pilis conspersa, subtus in costa nervisque hirto-villosa ceterum glabra v. subglabra, nervis utrinsecus 5–7. Cetera ut in specimine anthentico.

Hokkaido: July 1906, *H. Shirasawa*.

The species is really apetalous; but the calyx and sepals are colored intensely purple. It was not respresented in any of the other collections I have consulted.

Ser. 5. Amblyodon, n. ser.

98. **Prunus gracilifolia** Koehne. See p. 223.

99. **Prunus Rossiana** Koehne. See p. 223.

Grex II. MICROCERASUS (Spach, Roemer) Koehne, n. divis.

Cerasus sect. *Microcerasus* Spach, *Hist. Vég.* I. 423 (1834); in *Ann. Sci. Nat.* sér. 2, XIX. 125 (sensu ampl.) (1843).
Microcerasus Webb, *Phytogr. Canar.* II. 19 (sensu ampl.) (1836-40) — Roemer, *Syn. Pl.* III. 5, 93 (emend.) (1847).

Sect. 1. **SPIRAEOPSIS** Koehne, *Deutsche Dendr.* 306 (1893), sed excludenda "*Prunus Simonii* Carrière" et "*P. triflora* Roxburgh?"

Subsect. 1. MYRICOCERASUS Koehne, n. subsect.

100. **Prunus pumila** Linnaeus. Eastern North America.

101. **Prunus Besseyi** Bailey. Eastern North America.

Subsect. 2. SPIRAEOCERASUS Koehne, n. subsect.

102. **P. dictyoneura** Diels in *Bot. Jahrb.* XXXVI, Beibl. 82, 57 (1905).

Shensi: Tai-pei-shan, 1910, *Wm. Purdom* (No. 2); Yenan Fu, 1910, *Wm. Purdom* (No. 344). Also collected in northern Shensi by *G. Giraldi*: Khin-lin-shan, May to June, 1894, (No. 1696); Mt. Caa-cun, July 30, 1892 (No. 1134); San-juen-shen, July 1893 (No. 1135); Po-uo-li, southwest of Tshin-z-shien (No. 5195).

103. **Prunus humilis** Bunge in *Mém. Étr. Acad. Sci. St. Pétersbourg*, II. 97 (*Enum. Pl. Chin. Bor.*) (1833). — Hooker f. in *Bot. Mag.* CXX. t. 7335 (1894). — Koehne in *Mitt. Deutsch. Dendr. Ges.* XVIII. 181, fig. 3 (1909).

Prunus salicina Lindley in *Trans. Hort. Soc. Lond.* VII. 239 (1830), an forte huc pertinet?

P. Bungei Walpers, *Rep.* II. 9 (non Moris) (1893).

China, Peking, *A. Bunge; Skatschkow*; Po-hua-shan, a. 1877, *E. Bretschneider.* — Mandshuria, purchased at R. R. Station, Harbin, August 1903, *C. S. Sargent* (mixed with *P. japonica Engleri* Koehne).

104. **Prunus glandulosa** Thunberg, *Fl. Jap.* 202 (1784). — Koehne in *Mitt. Deutsch. Dendr. Ges.* XVIII. 181, fig. 2 (1909).

Amygdalus pumila Linnaeus, Mant. I. 74 (1767) saltem quoad iconem Plukenettianam (cf. infra sub subforma *sinensi*), sed confusa videtur cum alia quadam specie.

Cerasus glandulosa Loiseleur, *Nouv. Duhamel*, V. 33 (1825).

For a century this species has been always confused with *P. japonica* Thunberg, but it is very distinct and not connected with the latter by any intermediate forms. The opinion that transitions between these species existed arose from the fact that in herbaria admixtures of *P. biflora* Koehne and even of *Spiraea prunifolia* Siebold & Zuccarini often occur without being recognized, and the characteristic shape of the leaves has thus been obscured.

CLAVIS FORMARUM

Stipulae persistentes.
  Styli glabri
    Pedicelli glabri . . . . . var. *glabra.*
    Flores simplices . . . . . f. *Sieboldiana.*
      Flores albi . . . . . subf. *alba.*
      Flores rosei . . . . . subf. *rosea.*
    Flores pleni albi . . . . . f. *albiplena.*
    Pedicelli puberuli . . . . . var. *Purdomii.*
  Styli basi pilosi . . . . . var. *trichostyla*
    Flores simplices
      Pedicelli glabri . . . . . f. *Faberi.*
      Pedicelli puberuli . . . . . f. *paokangensis.*
    Flores pleni rosei, pedicelli puberuli . . . . . f. *sinensis.*
Stipulae deciduae . . . . . var. *salicifolia.*

Prunus glandulosa, var. **glabra** Koehne, n. var.

Prunus japonica, β *glandulosa* Maximowicz in *Bull. Soc. Nat. Mosc.* LIV. 13 (1879), sed exemplaria nonnulla ab auctore ipso determinata ad *P. japonicam* veram pertinent.

Ramuli novelli basi pulverulenti. Stipulae persistentes; lamina utrinque glabra v. subtus axilloso-barbulata. Pedicelli stylique glaberrimi.

Forma **Sieboldiana** Shirai in sched., n. f.

Folia lanceolata, nervis utrinsecus circa 5 quorum praecipue superiora verticalia v. conniventia. Flores simplices.

Japan: Kabuto, May 15, 1899, *U. Faurie* (No. 3211, color of the flowers not indicated).

Subf. **alba**, Koehne, n. subf.

P. japonica Lindley in *Bot. Reg.* VIII. t. 1801 (1835) verisimiliter huc pertinet, sed incerta quia foliorum forma non distincte delineata.

Petala alba.

Specimens not seen.

Subf. **rosea**, Koehne, n. subf.

Prunus glandulosa Thunberg, l. c.; huc pertinet propter "corollam incarnatam."
Prunus japonica, a typica flore roseo Maximowicz, in sched.
Prunus japonica, var. *flor. simp.* Tanaka, *Useful Pl. Jap.* 153, fig. 621 (1895).
Prunus japonica, var. *glandulosa* Matsumura, in *Tokyo Bot. Mag.* XIV. 136 (1900).

Petala rosea, in alabastro purpurea.

Japan: *Textor* (in the Rijks-Herbarium, Leyden, mixed with *P. triflora* Roxburgh, under the name of *P. japonica*); Nagasaki, 1862, *R. Oldham* (No. 190, in the Berlin Herbarium, mixed with *Prunus triflora*); Nagasaki, 1863, *Maximowicz* (Iter II., as *P. japonica typica, fl. roseo*). — Mandshuria: ad Ussuri superiorem, 1860, *Maximowicz* (Iter II., as *P. japonica, β glandulosa*, mixed with the genuine *P. japonica* Thunberg).

Forma **albiplena** Koehne, n. f.

Cerasus japonica, β multiplex Seringe mscr. apud De Candolle, *Prodr.* II. 539 (pro parte) (1825).
Prunus japonica, var. *flore pleno*, Siebold & Zuccarini, *Fl. Jap.* I. 172 t. 90 f. III. (pro parte) (1826).
Prunus japonica Oudemans, *Neerlands Plantentuin*, t. 2 (1865).
Prunus japonica, flore albo pleno Lemaire in *Ill. Hort.* V. t. 183 (1858).
Prunus japonica, γ Maximowicz in *Bull. Soc. Nat. Mosc.* LIV. 14 (pro parte) (1879).
Prunus japonica, var. *multiplex* Makino in *Tokyo Bot. Mag.* XXII. 72 (pro parte) (1908).

Folia latius angustiusve elliptica ad late lanceolata, leviter acuminata, nervis utrinsecus circa 7–10 patulis, supremis haud v. hinc inde tantum erectis. Pedicelli interdum ad 18 mm. longi; flores pleni, coaetanei; petala numerosissima, sat angusta; stamina nulla; carpidia 1–2, in folia parva herbacea commutata.

Japan: *Buerger* (in the Berlin Herbarium, mixed with *P. triflora* Roxburgh and *Spiraea prunifolia* Siebold & Zuccarini). Frequently cultivated in European gardens.

Prunus glandulosa, var. **Purdomii** Koehne, n. var.

Petioli pedicellique velutino-puberuli. Flores simplices; styli glaberrimi.

Northern China: Weichang, 1910, *Wm. Purdom* (No. 12).

Prunus glandulosa, var. **trichostyla** Koehne. See p. 224.

Forma **Faberi** Koehne. See p. 224.

Forma **paokangensis** (Schneider) Koehne, n. comb.

Prunus japonica, var. *packangensis* [1] Schneider in Fedde, *Rep. Nov. Sp.* I. 53 (1905).

Folia utrinque glabra. Pedicelli dense puberuli; petala alba v. rosea. Cetera ut in forma *Faberi*.

Western Hupeh: Paokang, April 1901, *E. H. Wilson* (Veitch Exped. No. 895 [2]); Changyang, alt. 1600 m., April 10, 1900, *E. H. Wilson* (Veitch Exped. No. 27); Nanto, March 1900, *E. H. Wilson* (Veitch Exped. No. 3).

[1] I consider myself justified to change the incorrect spelling *packangensis* into *paokangensis* in transferring this variety from *P. japonica* to *P. glandulosa*.

[2] No. 895 is not arboreous, as stated by Schneider, l. c., and by Koehne in *Mitt. Deutsch. Dendr. Ges.* XIX. 97 (1910) on account of an erroneous note on Wilson's label.

Forma sinensis (Persoon) Koehne, n. f.

Amygdalus indica nana Plukenett, *Phytogr.* I. t. 11. f. 4 (1691, nov. edit. 1769).
Prunus sinensis Persoon, *Syn.* II. 36 (1807).
Cerasus japonica Seringe in De Candolle, *Prod.* II. 539 (pro parte) (1825).
Prunus japonica flore pleno, Siebold & Zuccarini, *Fl. Jap.* I. 172 t. 90 f. III. (pro parte) (1826).
Prunus japonica, γ Maximowicz in *Bull. Soc. Nat. Mosc.* LIV. 14 (pro parte) (1883).

Folia lanceolata v. oblongo-lanceolata, haud v. parum acuminata, subtus juxta costam nervosque hirtella v. raro glabra, nervis utrinsecus circa 4–6 suberectis, supremis saepe verticalibus. Pedicelli circiter 10–15 mm. longi v. raro brevissimi, dense puberuli, interdum pedunculo brevi euphylla pauca parva gerente insidentes; flores coaetanei foliis simul 2.5–4.5 cm. longis; petala numerossima, sat angusta, rosea; stamina nulla; carpidia plerumque 2, rarius 1, in folia herbacea parva commutata.

Northern Shensi: Thae-pei-san, April 1895, *G. Giraldi* (No. 1137, mixed with *P. triloba* Lindley, var. *plena* Dippel).

Japan: *Buerger* (in the Rijks-Herbarium, Leyden, as *P. japonica*); Hondo, province of Nambu, 1865, *Tschonoski* (as *P. japonica*, γ *fl. pleno* Maximowicz).

Frequently cultivated in European gardens. In the Herbarium Kunth at Berlin it is found under the names of *Amygdalus pumila* and (from Paris) as *Prunus sinensis*.

This form differs from the form with white double flowers not only in the color of the flowers, but also in the nearly always present pubescence along the midrib beneath and in the pubescence of the pedicels.

Prunus glandulosa, var. **salicifolia** (Komarov) Koehne, n. comb.

Prunus japonica, var. *salicifolia* Komarov in *Act. Hort. Petrop.* XXII. 754 (1904).

Rami erecti virgati, 70–80 cm. alti, glabri; stipulae caducae; lamina anguste v. lineari-elliptica, acuminata v. acuta, simpliciter v. duplicato-serrata. Drupa paullo major, apiculata, minus succosa. Pedicelli plerumque solitarii. (Descr. secund. Komarov.)

Shing-king: Peninsula Liaotung, *Litvinov.* (I have seen no specimens.)

105. **Prunus pogonostyla** Maximowicz in *Bull. Soc. Nat. Mosc.* LIV. 11 (1879).

Prunus formosana Matsumura in *Tokyo Bot. Mag.* XV. 86 (1901); in *Jour. Coll. Sci. Tokyo* XXII. 118 t. 11 (*Enum. Pl. Formosa*) (1906); ex Hayata in *Jour. Coll. Sci. Tokyo* XXX. 87 (1911).

Prunus pogonostyla, var. **globosa** Koehne, n. var.

Folia brevius latiusque acuminata, subtus in costa tantum parce pilosa v. glabra. Drupa subglobosa, 6 mm. longa 5 mm. diam. (in sicco).

Fo-kien: summit of Mt. Nam-tai-wú near Amoy, alt. c. 600 m., December 1862, *de Grijs* (No. 10130).

Formosa: Tamsui, 1864, *R. Oldham* (No. 105, mixed with var. *obovata*).

Prunus pogonostyla, var. **obovata** Koehne, n. var.

Folia longius angustius acuminata, subtus densiuscule pilosa. Drupa anguste obovata, 9.5 mm. longa, 5.5 mm. diam.

Formosa: Tamsui, 1864, *R. Oldham* (No. 105, mixed with var. *globosa*).

106. **Prunus japonica** Thunberg, *Fl. Jap.* 201 (1784). — Siebold & Zuccarini, *Fl. Jap.* I. 172. t. 90 fig. I. II. (excludenda fig. III.) (1862). — Koehne in *Mitt. Deutsch. Dendr. Ges.* XVIII. 179, fig. 1 (1909).

Prunus japonica, a japonica Maximowicz in *Bull. Soc. Nat. Mosc.* LIV. 12 (1879), sed exemplaria ab auctore ipso determinata pro parte ad *P. glandulosam* pertinent.

Prunus japonica typica Matsumura in *Tokyo Bot. Mag.* XIV. 135 (1900), an huc pertinet?

CONSPECTUS FORMARUM

Flores simplices. Ovarium 1.
Folia brevius latiusque acuminata, dentes primariae breviores obtusiores, haud exacte triangulares. Rami minus graciles, erecti, virgati. var. *eujaponica*.
Folia adulta subtus glabra . . . . . f. *Fauriei*.
Folia adulta subtus in costa ac plerumque etiam in nervis hirtella. f. *Oldhamii*.
Folia longius angustiusque caudata, dentes primariae longiores, acutiores, exacte triangulares. Rami expansi, ramuli gracillimi, subdeflexi. var. *gracillima*.
Flores pallide rosei v. carneo-afflati v. albi.
Folia adulta subtus glabra. Flores pallide rosei . . . . . f. *Thunbergii*.
Folia adulta subtus in costa nervisque breviter hirtella.
Petala majora, carneo-afflata . . . . . f. *Engleri*.
Petala minora, alba . . . . . f. *minor*.
Flores intense rosei. (Foliorum indumentum mihi ignotum) . . f. *sphaerica*.
Flores semipleni, petalis staminibusque numerosis. Ovaria semper fere 2. var. *Kerii*.

Prunus japonica, var. **eujaponica** Koehne, n. var.

Rami ramulique erecti virgati, sat graciles. Folia e basi rotundata v. vix subcordata ovata, acuminata acumine sat brevi latoque, obtuso, dentes primariae breviusculae, obtusae, haud exacte triangulares. Flores simplices. Ovarium 1.

Forma **Fauriei** Koehne, n. f.

Folia adulta subtus glabra. Pedicelli fructiferi 1–3ni, 4–10 mm. longi. Putamen 6.6:4.8:4.3 mm., carina 3 mm. lata.

Japan: *Buerger* (in the Rijks-Herbarium, Leyden, as *P. japonica*); *U. Faurie* (No. 3158).

Forma **Oldhamii** Koehne, n. f.

Folia adulta subtus in costa ac plerumque etiam in nervis breviter hirtella. Pedicelli floriferi ac fructiferi 7–10 mm. longi. Stylus basi villosus. Putamen 7.5:5.5:5 mm. v. 8:5.5:5.5 mm., carina 2–3 mm. lata.

Hupeh: *A. Henry* (No. 3598 A). Japan: *J. J. Rein*; Nagasaki, 1862, *R. Oldham* (No. 200).

Prunus japonica, var. **gracillima** Koehne, n. var.

Rami expansi, ramuli gracillimi, subdeflexi. Folia e basi cordata v. rarius rotundata ovata, longe angusteque caudata cauda acuta v. obtusiuscula, dentes primariae longiores, acutiores, fere exacte triangulares. Flores simplices. Ovarium 1.

It is probable that this variety will prove to be a distinct species.

Forma **Thunbergii** Koehne, n. comb.

Prunus japonica, var. *Thunbergii* Koehne in Fedde, *Rep. Nov. Sp.* VIII. 23 (1910).

Folia adulta subtus glabra. Pedicelli 4 mm. longi; petala 5 mm. longa, rosea; stamina ad 3.5 mm. longa; stylus basi parce pilosus.

Cultivated in the Späth Arboretum near Berlin, received from St. Petersburg.

Forma **Engleri** Koehne, n. comb.

Prunus japonica, var. *Engleri* Koehne, l. c.

Folia adulta subtus in costa nervisque breviter hirtella. Pedicelli plerumque

7–13 mm., fructiferi ad 18 mm. longi; petala 8–10 mm. longa, carneo-afflata; stamina 6–8 mm. longa; stylus glaber v. basi densiuscule tenere villosus. Drupa 11:9 mm., apiculata, rarissime 17:16 mm., obtusissima; putamen 8.5–10:5.3–7: 5.8–7 mm., carina 3.6–4.5 mm. lata.

Mandshuria: on the upper Ussuri, 1860, *C. J. Maximowicz* (Iter II., as *P japonica β glandulosa*, in the Herb. Bot. Mus. Berlin mixed with *P. glandulosa*); at the frontiers of China towards Ninguta, *Goldenstaedt* (as *P. japonica, β glandulosa* Maximowicz); purchased at R. R. station near Harbin, August 1903, *C. S. Sargent* (mixed with *P. humilis* Bunge).

Cultivated in Europe.

Forma **minor** Koehne, n. f.

Folia subtus in costa nervisque breviter hirtella. Pedicelli 4 mm. longi, glabri; cupula nonnisi 2 mm. longa, sepala 2.2 mm., petala ad 7.5 mm. longa, alba; stamina ad 4.5 mm. longa. Stylus glaber.

Cultivated in the Späth Arboretum near Berlin.

Forma **sphaerica** (Carrière) Koehne, n. comb.

Prunus japonica, var. *sphaerica* Carrière in *Rev. Hort.* 1890, 468, fig. 163, tab. Flores intense rosei. Drupa globosa, circa 12 mm. diam., colore vini rubri.

I have not seen this form.

Prunus japonica, var. **Kerii** (Steudel) Koehne, n. var.

Prunus japonica Ker-Gawler in *Bot. Reg.* I. t. 27 (1815). — Decaisne in *Rev. Hort.* 1852, 301, t.

Amygdalus pumila Sims in *Bot. Mag.* XLVII. t. 2176 (1820).

Prunus Kerii Steudel, *Nomencl. Bot.* ed. 2, 403 (1841), qui citat *"Cerasus" japonica* Ker-Gawler.

Prunus japonica typica flore pleno, Zabel in Beissner, Schelle & Zabel, *Handb. Laubholz-Ben.* 238 (1903), an huc pertinet?

Folia subtus glabra. Pedicelli 3 mm. longi (an semper?); petala numerosa, ex iconibus intus alba, extus pallide purpurea. Ovaria semper fere 2, stylus basi parce pilosus. Drupa secundum Ker-Gawler parva, putamine rugoso.

Chekiang: Ningpo Mountains, 1891, *Faber* (mixed with *P. Persica*, and distributed as *P. hirtipes*).

Cultivated in England.

?**Prunus praecox** Carrière in *Rev. Hort.* 1892, 488, fig. 142, 143.

Originated from repeated sowings of *P. japonica*, var. *sphaerica* and supposed to be *P. japonica* × *domestica*. I have not seen it.

107. **Prunus Nakaii** Léveillé in Fedde, *Rep. Nov. Sp.* VII. 198 (1909).

Korea: mountains of Ouensan, July 1906, *U. Faurie* (No. 334); hills of Chinnampo, June 1907, *U. Faurie* (No. 77).

Prunus Nakaii differs from *P. japonica gracillima Engleri* in the much longer and more numerous hairs which cover the leaves beneath on the midrib and on the veins and less densely on the whole surface. As the flowers are not yet known, it seems better to retain *P. Nakaii* as a distinct species. The fruits had been described as hairy but the hairs turned out to be particles of cotton sticking to the fruits.

108. **Prunus carcharias** Koehne, n. sp.

Innovationes tenues, rectae, densissime ochraceo-hirsutae. Stipulae ad 12 mm. longae, ternatim digitatae, laciniis angustissime linearibus ac pectinato-

pinnatifidis, longissime glanduloso-fimbriatae, persistentes; petioli 6–8 mm. longi, densissime ochraceo-hirsuti; glandulae interdum 2 petioli apici v. laminae basi insertae; lamina e basi subcordata v. raro rotundata ovata v. ovato-lanceolata, 7–8 cm. longa, 3–4 cm. lata, longe caudata, cauda sursum angustissima, argute inciso-duplicato- v. triplici-serrata, dentibus primariis majusculis, fere exacte triangularibus, denticulas ad 10 gerentibus, glandula parva depresso-capitata terminatis, supra laxe accumbenti-pilosa, subtus initio dense accumbenti-hirsuta, postea in nervis dense, inter nervos laxius ochraceo-hirsuta, nervis utrinsecus 10–11, subtus pallidior. Flores fructusque ignoti.

Szech'uan: Nan-ch'uan, summer 1891, *A. von Rosthorn.*

This species resembles very much *P. Nakaii* Léveillé and *P. japonica gracillima* Koehne in the shape and serration of the leaves, but is readily distinguished by the dense hirsute pubescence of the branchlets, petioles and leaves, and by the deeply divided stipules.

Sect. 2. **AMYGDALOCERASUS** Koehne, n. sect.

Cerasus sect. *Microcerasus* Spach, sensu proprio (cf. p. 262 sub Grex II. *Microcerasus*).

Microcerasus, Webb *Phytogr. Canar.* II. 19 (1836–50), sensu proprio.—Schneider *Ill. Handb. Laubholzk.* I. 601 (1906).

Prunus subgen. *Microcerasus* Focke in Engler & Prantl, *Natürl. Pflanzenfam.* III, 3, 54 (1888), adjicienda *P. tomentosa* subgeneris *Cerasi*.

Prunus sect. *Trichocerasus* et subgen. *Microcerasus* Koehne, *Deutsche Dendr.* 302, 306 (1893).

109. **Prunus tomentosa** Thunberg, *Fl. Jap.* 203 (1784).—Siebold & Zuccarini, *Fl. Jap.* I. 51, t. 22 (1826).—E. Meyer in *Gartenfl.* XXV. 2, t. 853 (1876).—Jack in *Garden and Forest*, V. 580, fig. 99. (1892).

Japan, western and northern China.—Shensi: Tai-pei-shan, 1910, *Wm. Purdom* (No. 3). Without flowers it is impossible to refer the specimen to any of the varieties.

CONSPECTUS VARIETATUM.

Sepala cupula subbreviora ad sublongiora; ovarium inde a medio pilosum. Flores coaetanei; petala alba.

Cupula 2.5–3.5 mm. longa, ima basi excepta glabra; sepala 3.5 mm. longa, extus pilosa, patentia v. subreflexa; pedicelli 2–3 mm. longi, petala 8 mm.

Cupula brevis ac lata, sursum dilatata, sepala cupula sublongiora; flores sat remoti; petala 4–5 mm. lata. . . . . Var. *Spaethiana.*

Cupula breviter tubulosa, sursum haud dilatata, sepala cupulae subaequilonga; flores saepe conferti; petala 8 mm. lata. . . . . Var. *Graebneriana.*

Cupula 4.5–4.75 mm. longa, tubulosa v. sursum subdilatata, glabra v. subglabra; sepala cupula subbreviora, erecta v. patentia, extus pilosa; pedicelli 2 mm., fructiferi ad 4 mm. longi; petala 10–10.5 mm. longa, 5–6 mm. lata. Var. *insularis.*

Sepala cupulam dimidiam aequantia v. vix breviora; quando longiora sunt, ovarium fere a basi pilosum, pilis infimis plerumque subretrorsis.

Flores 5-meri, praecoces v. coaetanei; cupula glabra v. rarius pilosa; sepala extus pilosa v. rarissime glabra; petala alba (an semper?)

Ovarium basi glabrum.

Sepala (2.5 mm.) cupulaque (4.75 mm.) extus glaberrima; flores subsessiles praecoces. Rami annotini plus minus glabri.. . . . . Var. *Souliei.*

Sepala extus pilosa. Rami tomentosi.
Cupula (5 mm.) extus glabra v. subglabra, tubulosa v. leviter obconica, sepala 2 mm. longa; petala 6–7.5 mm. longa, 4–6.5 mm. lata; flores coaetanei. . . . . Var. *Kashkarovii.*
Cupula (5.5 mm.) extus sat dense pubescens, obconico-tubulosa, sepala 3 mm. longa; petala 7.5 longa, 4.5 mm. lata; flores subpraecoces. Var. *trichocarpa.*
Ovarium inde a basi pilosum, pilis infimis plus minus retrorsis; sepala extus plus minus pilosa.
Cupula 3 mm. longa, breviter campanulata, glabra, sepala 2 mm.; flores coaetanei. . . . . Var. *breviflora.*
Cupula 4.5–5 mm. longa, tubulosa v. tubuloso-obconica, sepala 2–3 mm.
Cupula glabra v. subglabra; pedicelli 0–2.5 mm. longi; petala 8.5–9 mm. longa . . . . . Var. *endotricha.*
Cupula extus sat dense puberulenta; pedicelli brevissimi. Var. *tsuluensis.*
Flores 5–8-meri, solitarii, praecoces; cupula 5 mm. longa, obconica, ut sepala (2.5 mm.) glabra; petala rubra; ovarium circiter medio pilosum. Var. *heteromera.*

Prunus tomentosa, var. **Spaethiana** Koehne, n. var. See above.
Cultivated in European gardens. Specimens from Cashmere, temperate region, alt. 1600–2000 m., *T. Thomson*, in Herb. Ind. Or., Hooker f. & Thompson, sterile branches, in foliage exactly like the cultivated specimens.

Prunus tomentosa, var. **Graebneriana** Koehne, n. var. See above.
Cultivated near the Botanic Garden, Berlin-Dahlem.

Prunus tomentosa, var. **insularis** Koehne, n. var. See above.
Japan: Yokohama, 1862, *C. J. Maximowicz*; Matsuge, June 30, 1899, *U. Faurie* (No. 3156); in Tottori, May 22, 1899, *U. Faurie* (No. 3157). Korea: cultivated in the gardens Tjouscheng, June 8, 1908, *Taquet* (No. 790); in the gardens of Ouensan, June 1906, *U. Faurie* (No. 335); Quelpaert, in the mission garden, April 1909, *Taquet* (No. 2526).

Prunus tomentosa, var. **Souliei** Koehne, n. var.
Rami annotini apice parce pilosi, basi glabri, cortice hinc inde rimoso. Flores subpraecoces foliis simul vix e gemma exsertis. Pedicelli vix 1 mm. longi, glabri v. subglabri; cupula 4.75 mm. longa, tubulosa, extus ima basi pubescens ceterum gabra, intus basi excepta pilosa; sepala 2.5 mm. longa, ovata, minutim glanduloso-serrulata, utrinque glabra, subreflexa; petala ignota; ovarium inde a medio pilosum.
Szech'uan: Tachien-lu, *J. A. Soulié.*

Prunus tomentosa, var. **Kashkarovii** Koehne, n. var.
Rami annotini tomentosi, vetustiores plus minus glabrati, cortice plus minus rimoso. Flores coaetanei foliis simul circa 1.5 cm. longis; pedicelli 1–2.5 mm. longi, pubescentes; cupula 5 mm. longa, tubulosa v. sursum vix dilatata, glabra v. subglabra, intus ima basi excepta dense pubescens; sepala 2 mm. longa, plus minus horizontalia, minutim glanduloso-serrulata, extus subpilosa; petala 6–7.5 mm. longa, 5–6.5 mm. lata; stamina 16–21, ad 5 mm. longa; ovarium inde a medio pilosum.
Tibet: on the road from Tachien-lu to Batang, between Olun-sha and Nakh-chukha (or Hok'ou), May 18, 1893, *V. A. Kashkarov.* Western Hupeh: April 1901, *E. H. Wilson* (Veitch Exped. No. 1864).

Prunus tomentosa, var. endotricha Koehne. See p. 225.

cuneata inverse oblonga v. oblanceolata, 1–3 cm. longa, 0.5–0.8 cm. lata, acuta v. obtusa, breviter mucronata, crenulata dentibus glandula minima mucroniformi coronatis, supra saturate viridis, nervis omnino inconspicuis, subtus pallida nervis utrinsecus 5–8 reticuloque teneris, viridibus, supra haud stomatophora. Cupula [1] circiter 2.5 mm. longa, glaberrima; sepala 3 mm. longa, paullo angustiora, obtusissima, irregulariter glanduloso-denticulata, glaberrima; stamina versus 25 videntur, uniseriata, majora ad 7 mm. longa. Drupa subsessilis, rotundata subcompressa, ad 19:18:13 mm., viridis, dense velutina ac laxiuscule hirta, carne tenui facillime solubili, teste cl. *Wilson* dehiscens; putamen rotundatum, breviter apiculatum, subcompressum, ad 17:16:12 mm., durum, utroque margine carinatum, sulcis basi longitudinalibus, juxta carinas obliquis, superne transversalibus curvatis, facie parum anastomosantibus rugosum.

Western Szech'uan: near Sungpan Ting, alt. 2000–2900 m., October 1910 (No. 4028).

Prunus dehiscens is apparently very similar to *P. mongolica* Maximowicz, but the latter differs according to the description of that species in its leaves, 1.1 cm. long and 0.9 cm. broad, with four pairs of veins, in the scarcely compressed and sparingly tomentose fruit, only 13 mm. long and 10 mm. broad, and the scarcely compressed stone with firmly adhering flesh; of the dehiscence of the fruit Maximowicz says nothing, nor does he describe the surface of the stone.

Prunus mira Koehne, n. sp.

Arbor 10-metralis, trunco 0.4 m. diam.; rami glaberrimi, hornotini virides, vetustiores ochraceo-fuscescentes; gemmae sub fructificationis tempore minimae. Stipulae ignotae; petioli 8–15 mm. longi, versus apicem 2–4-glandulosi, glandulis ovalibus disciformibus; lamina e basi plerumque rotundata lanceolata, 5–10.5 cm. longa, 1.4–2.8 cm. lata, longe sensim acuminata, subremote crenulato-serrulata, acumine superne integro, dentibus glandula parva mucroniformi adusta decidua coronatis, supra glabra, subtus basi secus costae utrumque latus villosa ceterum glabra, supra laete viridis, subtus pallidior, nervis utrinsecus circiter 12–16, reticulo subtus leviter prominulo. Pedicelli fructiferi solitarii v. gemini, 3–5 mm. longi, crassiusculi, glabri. Drupa ex sicco subglobosa, 28 mm. longa, 25 mm. diam., densissime tomentosa, edulis; putamen ovatum, sat compressum, 19:13:9 mm., dorso carinatum, ventre sulco angusto percursum, basi sulculis obsoletissimis munitum, ceterum laevissimum.

[1] I have seen only two calyxes already separated, but still adhering to the base of the fruit.

Western Szech'uan: two miles north of Tachien-lu, very rare, alt. 2800 m., October 1910 (No. **4205**).

This is the first Peach known with a smooth stone. I have a foliiferous branch of an "*Amygdalus lancifolia* Carr." collected in Späth's Arboretum near Berlin, October 3, 1887, the leaves of which agree exactly with those of *P. mira*. I have not been able to trace the name *Amygdalus lancifolia* in literature. There exists only a *Prunus lancifolia* Clavaud which is referred to *P. maritima* Wangenheim in the *Index Kewensis*.

Prunus Persica (Linnaeus) Stokes, *Bot. Mat. Med.* III. 100 (1812).

Amygdalus Persica Linnaeus, *Spec.* 472 (1753).
Persica vulgaris Miller, *Gard. Dict.* ed. 8 (1768).
Prunus Persica, β vulgaris Maximowicz in *Bull. Acad. Sci. St. Pétersbourg*, XXIX. 82; in *Mél. Biol.* XI. 668 (1883).

Wilson collected two specimens differing but little in the pubescence of the sepals.

1. Sepala extrinsecus media parte glabra, secus margines tantum albo-villosa v. nonnisi margine ipso villoso-ciliata, quare *P. Davidianae* Franchet sepalis magis similia.

Western Hupeh: north and south of Ichang, naturalized, roadsides, etc., alt. 300–1600 m., May and September 1907 (No. **125**[a]).

2. Sepala extrinsecus undique villosa.

Western Hupeh: Hsing-shan Hsien, naturalized, on cliffs etc., alt. 600–1600 m., March and August 1907 (No. **125**[b]); Fang Hsien, roadsides etc., abundant, alt. 1300–2500 m., May and November 1907 (No. **611**).

CONSPECTUS ANALYTICUS SPECIERUM CHINENSIUM SUBGEN. AMYGDALI.

Folia profunde serrata v. duplicato-serrata. Sepala plus minus reflexa; ovarium hirto-tomentosum.
  Flores 5–10-meri, simplices v. pleni; cupula intus infra stamina pilis annulum angustum sistentibus munita, sepala extus pilosa v. glabra. Folia pleraque supra medium latiora, saepe plus minus triloba, haud v. brevissime, rarius longius acuminata, subtus initio tomentoso-cana, dein plus minus glabrata, dentes plerumque breviores et minus acutae quam in sequente . . *P. triloba*.
  Flores circiter 10-meri sepalis petalisque 10; cupula intus glaberrima, sepala extus glabra. Folia medio v. infra medium latiora, nunquam triloba, sensim angustata v. acuminata, initio glaberrima v. subtus in nervis parce sericea, innovationum suprema interdum subtus densiuscule pilosa, dentes brevissime argutissime acuminatae . . . . . *P. Petzoldii*.
Folia breviter serrata vel crenata. Sepala erecto-patula; ovarium tomentosum (exc. in *P. Persica*, var. *nucipersica*).
  Folia parva, ad summum 4 cm. longa. Drupae parvae, ad 13 mm. longae.
    Inermes. Folia serrata. Cupula intus secus staminum insertionem hirtella.
      Ramuli hornotini puberuli. Folia utrinque puberula mox glabra, spathulata, v. obovata ad lineari-lanceolata. Pedicellus fructifer drupa (10–13 mm. longa) dimidia brevior v. sublongior. Putamen laeve. *P. pedunculata*.
      Ramuli hornotini cinereo-pilosi. Folia utrinque cinereo-pilosa, obovata. Pedicellus fructifer brevissimus, drupa (immatura) pisiformis. *P. pilosa*.

cuneata inverse oblonga v. oblanceolata, 1–3 cm. longa, 0.5–0.8 cm. lata, acuta v. obtusa, breviter mucronata, crenulata dentibus glandula minima mucroniformi coronatis, supra saturate viridis, nervis omnino inconspicuis, subtus pallida nervis utrinsecus 5–8 reticuloque teneris, viridibus, supra haud stomatophora. Cupula [1] circiter 2.5 mm. longa, glaberrima; sepala 3 mm. longa, paullo angustiora, obtusissima, irregulariter glanduloso-denticulata, glaberrima; stamina versus 25 videntur, uniseriata, majora ad 7 mm. longa. Drupa subsessilis, rotundata subcompressa, ad 19:18:13 mm., viridis, dense velutina ac laxiuscule hirta, carne tenui facillime solubili, teste cl. *Wilson* dehiscens; putamen rotundatum, breviter apiculatum, subcompressum, ad 17:16:12 mm., durum, utroque margine carinatum, sulcis basi longitudinalibus, juxta carinas obliquis, superne transversalibus curvatis, facie parum anastomosantibus rugosum.

Western Szech'uan: near Sungpan Ting, alt. 2000–2900 m., October 1910 (No. 4028).

Prunus dehiscens is apparently very similar to *P. mongolica* Maximowicz, but the latter differs according to the description of that species in its leaves, 1.1 cm. long and 0.9 cm. broad, with four pairs of veins, in the scarcely compressed and sparingly tomentose fruit, only 13 mm. long and 10 mm. broad, and the scarcely compressed stone with firmly adhering flesh; of the dehiscence of the fruit Maximowicz says nothing, nor does he describe the surface of the stone.

Prunus mira Koehne, n. sp.

Arbor 10-metralis, trunco 0.4 m. diam.; rami glaberrimi, hornotini virides, vetustiores ochraceo-fuscescentes; gemmae sub fructificationis tempore minimae. Stipulae ignotae; petioli 8–15 mm. longi, versus apicem 2–4-glandulosi, glandulis ovalibus disciformibus; lamina e basi plerumque rotundata lanceolata, 5–10.5 cm. longa, 1.4–2.8 cm. lata, longe sensim acuminata, subremote crenulato-serrulata, acumine superne integro, dentibus glandula parva mucroniformi adusta decidua coronatis, supra glabra, subtus basi secus costae utrumque latus villosa ceterum glabra, supra laete viridis, subtus pallidior, nervis utrinsecus circiter 12–16, reticulo subtus leviter prominulo. Pedicelli fructiferi solitarii v. gemini, 3–5 mm. longi, crassiusculi, glabri. Drupa ex sicco subglobosa, 28 mm. longa, 25 mm. diam., densissime tomentosa, edulis; putamen ovatum, sat compressum, 19:13:9 mm., dorso carinatum, ventre sulco angusto percursum, basi sulculis obsoletissimis munitum, ceterum laevissimum.

[1] I have seen only two calyxes already separated, but still adhering to the base of the fruit.

Western Szech'uan: two miles north of Tachien-lu, very rare, alt. 2800 m., October 1910 (No. **4205**).

This is the first Peach known with a smooth stone. I have a foliiferous branch of an "*Amygdalus lancifolia* Carr." collected in Späth's Arboretum near Berlin, October 3, 1887, the leaves of which agree exactly with those of *P. mira*. I have not been able to trace the name *Amygdalus lancifolia* in literature. There exists only a *Prunus lancifolia* Clavaud which is referred to *P. maritima* Wangenheim in the *Index Kewensis*.

Prunus Persica (Linnaeus) Stokes, *Bot. Mat. Med.* III. 100 (1812).

Amygdalus Persica Linnaeus, *Spec.* 472 (1753).
Persica vulgaris Miller, *Gard. Dict.* ed. 8 (1768).
Prunus Persica, β *vulgaris* Maximowicz in *Bull. Acad. Sci. St. Pétersbourg*, XXIX. 82; in *Mél. Biol.* XI. 668 (1883).

Wilson collected two specimens differing but little in the pubescence of the sepals.

1. Sepala extrinsecus media parte glabra, secus margines tantum albo-villosa v. nonnisi margine ipso villoso-ciliata, quare *P. Davidianae* Franchet sepalis magis similia.

Western Hupeh: north and south of Ichang, naturalized, roadsides, etc., alt. 300–1600 m., May and September 1907 (No. **125**[a]).

2. Sepala extrinsecus undique villosa.

Western Hupeh: Hsing-shan Hsien, naturalized, on cliffs etc., alt. 600–1600 m., March and August 1907 (No. **125**[b]); Fang Hsien, roadsides etc., abundant, alt. 1300–2500 m., May and November 1907 (No. **611**).

CONSPECTUS ANALYTICUS SPECIERUM CHINENSIUM
SUBGEN. AMYGDALI.

Folia profunde serrata v. duplicato-serrata. Sepala plus minus reflexa; ovarium hirto-tomentosum.
  Flores 5–10-meri, simplices v. pleni; cupula intus infra stamina pilis annulum angustum sistentibus munita, sepala extus pilosa v. glabra. Folia pleraque supra medium latiora, saepe plus minus triloba, haud v. brevissime, rarius longius acuminata, subtus initio tomentoso-cana, dein plus minus glabrata, dentes plerumque breviores et minus acutae quam in sequente . . *P. triloba*.
  Flores circiter 10-meri sepalis petalisque 10; cupula intus glaberrima, sepala extus glabra. Folia medio v. infra medium latiora, nunquam triloba, sensim angustata v. acuminata, initio glaberrima v. subtus in nervis parce sericea, innovationum suprema interdum subtus densiuscule pilosa, dentes brevissime argutissime acuminatae . . . . . *P. Petzoldii*.
Folia breviter serrata vel crenata. Sepala erecto-patula; ovarium tomentosum (exc. in *P. Persica*, var. *nucipersica*).
  Folia parva, ad summum 4 cm. longa. Drupae parvae, ad 13 mm. longae.
    Inermes. Folia serrata. Cupula intus secus staminum insertionem hirtella.
      Ramuli hornotini puberuli. Folia utrinque puberula mox glabra, spathulata, v. obovata ad lineari-lanceolata. Pedicellus fructifer drupa (10–13 mm. longa) dimidia brevior v. sublongior. Putamen laeve. *P. pedunculata*.
      Ramuli hornotini cinereo-pilosi. Folia utrinque cinereo-pilosa, obovata. Pedicellus fructifer brevissimus, drupa (immatura) pisiformis. *P. pilosa*.

Spinosae. Folia crenulata, glaberrima, nervis supra inconspicuis.
Flores sessiles v. subsessiles.
Folia 11:9 mm., rotundato-elliptica, nervis utrinsecus circiter 4. Drupa 13:10 mm., vix compressa, parce tomentella, verisimiliter indehiscens; putamen cum epicarpio arctissime connatum . . . . . *P. mongolica.*
Folia 10–30:5–8 mm., cuneato-oblonga v. -lanceolata, nervis utrinsecus circiter 5–8. Drupa ad 19:18:13 mm., subcompressa, dense velutina ac laxius hirta, dehiscens, carne tenui; putamen facillime solubile, rugosum. *P. dehiscens.*

Folia majora, (5–)6–15 cm. longa.
Putamen laeve ovatum; drupa epicarpio carnoso, densissime tomentosa.
Folia lanceolata, subtus basi secus costae latera villosa . . . . *P. mira.*
Putamen haud laeve. Drupa tomentosa, nonnisi in *P. Persica* var. *nucipersica* glabra.
Putamen profunde irregulariter sulcatum et foraminulatum.
Sepala glaberrima. Petioli 10–22 mm. longi, dimidia laminae latitudine longiores, raro glanduliferi . . . . . *P. Davidiana.*
Sepala extus v. saltem margine lanato-villosa. Petioli 5–10 mm. longi, dimidia laminae latitudine breviores (nonnisi in var. *densa* 8–22 mm. longi), saepe glanduliferi . . . . . *P. Persica.*
Putamen sulcis irregularibus obsitum, sed absque foraminibus punctiformibus. Folia lanceolata, subtus saepe basi ad costam barbata, 5 cm. longa, 1.5 cm. lata . . . . . *P. tangutica.*

ENUMERATIO SPECIERUM CHINENSIUM SUBGEN. AMYGDALI.

1. **Prunus triloba** Lindley in *Gard. Chron.* 1857, 268. — Lemaire in *Ill. Hort.* VIII. t. 308 (1861). — Stapf in *Bot. Mag.* CXXXII. t. 8061 (1906). — Koehne in *Mitt. Deutsch. Dendr. Ges.* XIX. 100 (1910).
Amygdalopsis Lindleyi Carrière in *Rev. Hort.* 1862, 91, fig. 10, t.; 1870, 388, fig. 56 (fructus). — Van Houtte in *Fl. des Serres*, XV. t. 1532 (1862–65).
Prunus ulmifolia Franchet in *Ann. Sci. Nat.* sér. 6, XVI. 281 (1883).
Prunopsis Lindleyi André in *Rev. Hort.* 1883, 367, fig. 65 (fructus).
Chili, Shantung.

Prunus triloba, var. **truncata** Komarov in *Act. Hort. Petrop.* XXII. 539 (1904).
Northern Korea.

Prunus triloba, var. **plena** Dippel, *Handb. Laubholzk.* III. 608 (1893).
I have seen a Chinese specimen from northern Shensi: Thae-pei-san, April 1895, *G. Giraldi* (No. 1137), mixed with a variety of *P. glandulosa*, Thunberg.

2. **Prunus Petzoldii** K. Koch, *Dendr.* I. 92 (1869). — Koehne in *Mitt. Deutsch. Dendr. Ges.* XIX. 100 (1910).
Cultivated in the gardens at Peking (Maximowicz in *Bull. Acad. Sci. St. Pétersbourg*, XXIX. 80; in *Mél. Biol.* XI. 665 (1883). I have seen no Chinese specimens.
Prunus baldschuanica Regel in *Act. Hort. Petrop.* XI. 314 (1890); in *Gartenfl.* XXXIX. 613 (1890) is not identical with *P. Petzoldii* nor with *P. ulmifolia* Franchet; see also Koehne in *Mitt. Deutsch. Dendr. Ges.* XIX. 98 (1910).

3. **Prunus pedunculata** (Pallas) Maximowicz in *Bull. Acad. Sci. St. Pétersbourg*, XXIX. 78; in *Mél. Biol.* XI. 663 (1883).
Amygdalus pedunculata Pallas in *Nov. Act. Petrop.* VII. 355, t. 8, 9 (1798).
Baikal region, northeastern Mongolia, southern Altai.

4. **Prunus pilosa** (Turczaninow) Maximowicz in *Bull. Acad. Sci. St. Pétersbourg*, XXIX. 79; in *Mél. Biol.* XI. 664 (1883).

Amygdalus pilosa Turczaninow in *Bull. Soc. Nat. Mosc.* V. 189 (1832).

Northeastern Mongolia.

Very similar to *Prunus pedunculata* and probably not different, or a variety.

5. **Prunus mongolica** Maximowicz in *Bull. Soc. Nat. Mosc.* XLV. 16 (1879). in *Bull. Acad. Sci. St. Pétersbourg*, XXIX. 78; in *Mél. Biol.* XI. 663 (1883).

Southern Mongolia.

6. **Prunus dehiscens** Koehne. See p. 271.

7. **Prunus mira** Koehne. See p. 272.

8. **Prunus Davidiana** (Carrière) Franchet in *Nouv. Arch. Mus. Paris*, sér. 2, V. 255 (*Pl. David.* I. 103). (1883).

Persica Davidiana Carrière in *Rev. Hort.* 1872, 74, fig. 10 (fructus).

Prunus Persica, a Davidiana Maximowicz in *Bull. Acad. Sci. St. Pétersbourg*, XXIX. 81; in *Mél. Biol.* XI. 667 (1883).

Shensi; Yenan-fu, May 1910, *Wm. Purdom* (No. 347). I have also seen specimens from Kwei-chou collected by *J. Cavalerie* (Nos. 2212, 2225), *E. Bodinier* and *L. Martin* (No. 2071), and from Yunnan, Yunnan-sen, *E. Bodinier* (No. 54D). According to Maximowicz the species occurs on the mountains near Peking and on those of Shensi and Kansu.

Prunus Davidiana alba (Carrière), Bean in *Garden*, L. 165, fig. (1896).

Persica Davidiana alba Carrière in *Rev. Hort.* 1872, 76.

Prunus Davidiana flore albo Wittmack in *Gartenfl.* XLIV. 129, fig. 34, t. 1412 (1895).

9. **Prunus Persica** (Linnaeus) Stokes. See p. 273.

Prunus Persica, var. **Potanini** Batalin in *Act. Hort. Petrop.* XII. 164 (1892).

Kansu: in the valley of the river Hei-ho, July 21, 1885, *G. N. Potanin.*

Prunus Persica, var. **densa** Makino in *Tokyo Bot. Mag.* XVI. 178 (1902).

Cultivated in Japan, where it was introduced from China.

As Japanese garden forms the following varieties have been described:

Prunus Persica, β vulgaris, f. *stellata* Makino, l. c. XXII. 119 (1908) = *Amygdalus Persica*, var. *stellata*, in *Ann. Hort. Bot. Pays-Bas*, II. 66, t. 6 (1859) = *Amygdalus Persica*, var. *monstrosa* Siebold ined. apud Maximowicz in *Bull. Acad. Sci. St. Pétersbourg*, XXIX. 83; in *Mél. Biol.* XI. 669 (1883), and *Prunus Persica, β. vulgaris*, f. *praematura* Makino in *Tokyo Bot. Mag.* XXII. 119 (1908).

Prunus persica, var. **nucipersica**, Dippel, *Handb. Laubholzk.* III. 606 (1893).

Amygdalus Persica, β Nucipersica Linnaeus, *Spec.* 472 (1753).

Persica nucipersica Borkhausen, *Vers. Forstbot. Beschr.* 205 (1790).

Persica laevis De Candolle, *Flora Franç.* IV. 487 (1805). — Seringe in De Candolle, *Prodr.* II. 531 (1825).

Amygdalus Persica, β nectarina Aiton, *Hort. Kew.* II. 161 (1789).

Prunus Persica, γ necturina [*sic*] Maximowicz in *Bull. Acad. Sci. St. Pétersbourg*, XXIX. 83; in *Mél. Biol.* XI. 669 (1883). Maximowicz quotes erroneously as synonyms also *Prunus Simonii* Carrière and *Persica Simonii* Decaisne.

Cultivated in China and Japan, teste Maximowicz.

10. **Prunus tangutica** (Batalin) Koehne, n. comb.

Amygdalus communis, var. *tangutica* Batalin in *Act. Hort. Petrop.* XII. 163 (1892).

Amygdalus tangutica Korshinsky in *Bull. Acad. Sci. St. Pétersbourg*, sér. 5, XIV. 94 (1901).

Eastern Kansu.

According to Batalin this is the only Almond which occurs in China. In fact the true Almond, *Prunus communis* (Linnaeus) Fritsch = *P. Amygdalus* Stokes = *Amygdalus communis* Linnaeus) has not yet been found in China (see Maximowicz in *Bull. Acad. Sci. St. Pétersbourg*, XXIX. 84; in *Mél. Biol.* XI. 670 [1883]).

Amygdalus Heuckeana Schlechtendal in *Abh. Natur. Ges. Halle*, II. 22 (1854). — Maximowicz in *Bull. Acad. Sci. St. Pétersbourg*, XXIX. 84; in *Mél. Biol.* XI. 671 (1883).

Mongolia.

This is a doubtful species and may belong to *Prunus nana* Focke.

Subgen. PRUNOPHORA (Necker) Focke.[1]

Prunus triflora (lapsu *trifolia*) Roxburgh, Fl. Ind., ed. 2, II. 501 (1832). — Hooker f., *Fl. Brit. Ind.* II. 315 (1878). — Maximowicz in *Bull. Acad. Sci. St. Pétersbourg*, XXIX 89; in *Mél. Biol.* XI. 678, (1883).

Prunus triflora Roxburgh, Hort. Bengal. 38 (nomen nudum) (1814).

Prunus communis Maximowicz in *Bull. Acad. Sci. St. Pétersbourg*, XXIX. 88; in *Mél. Biol.* XI. 677 (non Hudson) [2] (1883).

Prunus ichangana Schneider in Fedde, *Rep. Nov. Sp.* I. 50 (1905).

Variat pedicellorum longitudine (5–21 mm.), praeterea pedicellis glabris v. pubescentibus, druparum putaminumque magnitudine. Specimina Wilsoniana omnia pedicellis glabris praedita sunt.

a. Drupa fusco-rubra.

Western Sze'ch'uan: west and near Wên-ch'uan Hsien, alt. 1300–2500 m., September 1908 (No. **1027**; drupa circa 24:26 mm., putamen 15:11:7 mm.).

b. Drupa rubra.

Western Szech'uan: Wa-shan, thickets, alt. 1600–2300 m., October 1908 (No. **1121**; drupa 27:27 mm., putamen 14:11:8 mm.); Wên-chuan Hsien, alt. 2600–3000 m., October 1910 (No. **4202**; drupa

[1] *Prunus Taqueti* Léveillé & Vaniot in Fedde, *Rep. Sp. Nov.* VII. 197 (1909) proves to be a species of *Rhamnus*.

[2] *Prunus communis* Hudson (*P. domestica* Linnaeus) is reported from China as wild and cultivated by Maximowicz, Diels, Forbes & Hemsley, Franchet and others, but like Schneider I have seen so far no specimens from China, and must agree with him, when he says (in Fedde *Rep. Sp. Nov.* I. 50) that the occurrence of our common Plum in China is very doubtful.

c. 15:13 mm., putamen 10:8:6.5 mm.; this and No. 175 are the forms with the smallest fruits and stones). Western Hupeh: Hsing-shan Hsien, thickets, alt. 1300–1600 m., May and September 1907 (No. **241**; drupa c. 25:25 mm., putamen 15:9:6.5 mm.); Patung Hsien, alt. 1000–1600 m., May and August 1907 (No. **104**; drupa c. 17:16 mm.; putamen 13:10:8.5 mm.); Changyang Hsien, thickets, alt. 1000–1600 m., April and September 1907 (No. **116**; drupa c. 26:26 mm., putamen 13.5:11.5:7.5 m.).

c. Drupa lutea.

Western Hupeh: Chang-lo Hsien, woods, alt. 1300–2000 m., May and September 1907 (No. **120**; drupa circa 18:16 mm., putamen 14:9.5:7 mm.).

d. Drupa viridis.

Western Hupeh: Ichang, cultivated, alt. 300–600 m., June 1907 (No. **66**; drupa c. 27:27 mm., putamen 13:11:8 mm.).

e. Drupae color non indicatus.

Western Szech'uan: wild and cultivated around Tachien-lu, alt. 2300–3000 m., August 1908 (No. **993**; drupa c. 25:25 mm., putamen 17:15:10 mm.). Western Hupeh: Hsing-shan Hsien, alt. 1300–2000 m., May and August 1907 (No. **169**; drupa c. 20:20 mm., putamen 12:10:8 mm.); Hsing-shan Hsien, woodlands, alt. 1300–1600 m., April and August 1907 (No. **175**; drupa c. 14:14 mm., putamen 12.5:9:7 mm.); Patung Hsien, thickets, alt. 1300 m., July 1907 (No. **82**; drupa c. 24:22 mm., putamen 15:11:9 mm.); Fang Hsien, thickets, alt. 1600 m., September 1907 (No. 243[a]; fruit not seen); Patung, April 1901 (Veitch. Exped. No. 1781; fruit not seen); Ichang, March 30, 1900 (Veitch Exped. No. 124, type of *P. ichangana* Schneider).

The color of the fruits is given as indicated by Wilson.

The plant is cultivated also in Japan and in the Himalayas and Korea, and has been introduced in North America and Europe.

Prunus platysepala Koehne, n. sp.

Arbor 3.3 m. alta; rami crassi, annotini intense fusci, nitiduli, glabri, vetustiores cinerei; gemmae anguste conicae, 4 mm. longae, saepe ternae. Folia vernatione convoluta, ceterum ignota. Flores 1–3ni, praecoces; involucrum 2–3 mm. longum latumque; bracteae inclusae; pedicelli 4–5 mm. longi, glabri; cupula patenter turbinata, 3 mm. longa, glabra; sepala latissima, subsemiorbicularia, 2 mm. longa, patentia, brevissime glanduloso-fimbriolata ceterum glabra; petala obovata,

10 mm. longa 7 mm. lata, haud emarginata, alba; stamina 44, petalis paullo breviora, ad 7 mm. longa; pistillum 9 mm. longum, glabrum, stylus stamina aequans.

Western Hupeh: Changyang Hsien, alt. 1000–1300 m., March 20, 1907 (No. **2813**).

Prunus mume Siebold & Zuccarini, *Fl. Jap.* I. 29. t. 11 (1826).

Armeniaca mume Siebold in *Verh. Batav. Genoot.* XII. No. I. 69 (*Syn. Pl. Oecon.*) (nomen nudum) (1827).

Prunus Mume α *typica* Maximowicz in *Bull. Acad. Sci. St. Pétersbourg*, XXIX. 84; in *Mél. Biol.* XI. 671 (1883).

Western Szech'uan: west and near Wên-ch'uan Hsien, thickets, alt. 1300–2500 m., September 1908 (No. **1018**); alt. 1600–2000 m., October 1910 (No. **4146**). Western Hupeh: Ichang, wild and cultivated, alt. 300–1000 m., March and September 1907 (No. **75**).

Prunus Armeniaca Linnaeus, *Sp. Pl.* 474 (1753).

Armeniaca vulgaris Lamarck, *Encycl. Meth.* I. 2 (1780).

Prunus Armeniaca, var. *typica* Maximowicz in *Bull. Acad. Sci. St. Pétersbourg*, XXIX. 86; in *Mél. Biol.* XI. 674 (1883).

Western Hupeh: Ichang, cultivated, alt. 30–1000 m., March and July 1907 (No. **2814**), "fruit of poor flavor." Spontaneous in the mountains near Peking and on mount Po-hua-shan, according to Maximowicz.

CONSPECTUS ANALYTICUS SPECIERUM ASIAE ORIENTALIS SUBGEN. PRUNOPHORAE.

Drupa ut ovarium glabra . . . . . Sect. I. **EUPRUNUS.**

Folia vernatione conduplicata. Petala 5–6 mm. longa.

Dentes foliorum glandulosae. Flores praecoces. Gemmae floriferae glomeratae. Pedicelli circa 7 mm. longi; stamina 32 . . . . . *P. consociiflora.*

Dentes omnino eglandulosae. Flores coaetanei. Gemmae floriferae singulae ad utrumque latus gemmae foliiferae. Pedicelli 1.5–3 mm. longi; stamina 22–24 (Mandshuria) . . . . . *P. gymnodonta.*

Folia convoluta (vernatio vero in *P. platysepala* ignota).

Petala 3–4.5 mm. longa, staminibus vix aequilonga. Folia oblonga obtusa, crenata, dentibus apice glanduloso-callosis. Flores coaetanei, (foliis simul ad 3 cm. longis). Pedicelli 8–18 mm. longi, 3–4ni ex eadem gemma. *P. thibetica.*

Petala 6–11 mm. longa, staminibus paullo v. manifeste longiora. Pedicelli 1–3ni.

Sepala longiora quam lata. Pedicelli (5–)7–21 mm. longi.

Foliorum nervi 5–11, sub angulo circiter 45° aequante v. paullo minore patuli. Drupa 14–27 mm. longa. Flores coaetanei v. raro praecoces. *P. triflora.*

Foliorum nervi 3–4 insigniter erecti, supremi 2 conniventes. Drupa circiter 33–44 mm. longa. Flores coaetanei . . . . . *P. Simonii.*

Sepala latiora quam longa, semiorbicularia. Pedicelli 4–5 mm. longi; stamina circiter 44. Flores praecoces. . . . . *P. platysepala.*
Drupa (in nostris) ut ovarium pilosa. Folia convoluta (sed in *P. anomala* vernatio adhuc ignota). . . . . Sect. II. **ARMENIACA.**
Flores in foliorum adultorum axillis solitarii, e gemmis unifloris orti, involucro basali vix 2 mm. longo. Pedicelli 6–7 mm. longi. . . . . *P. anomala.*
Flores praecoces e ramis defoliatis orti.
Folia breviter crenato-serrata v. crenata.
Putamen crebre foraminulatum, praeterea haud raro sulcis nonnullis irregularibus exsculptum, carina nunc obtusa nunc prominente arguta, epicarpio haud solubili. Folia typice e basi acuta v. late cuneata obovata acuminata. . . . . *P. mume.*[1]
Putamen haud foraminulatum, laeve v. leviter ruguloso-reticulatum, hinc alato-carinatum, epicarpio solubili. (Folia forma et indumento varibilia [1]).
Drupa parva (circiter 2 cm. diam.), parum succulenta, vix esculenta, epicarpio (teste Pallas, Maximowicz) demum dehiscente. . *P. sibirica.*
Drupa major, succulenta, edulis, epicarpio indehiscente. . *P. Armeniaca.*
Folia inaequaliter inciso-duplicato-serrata, dentibus longioribus quam latis acutissimis. Drupa parum succulenta. Putamen laeve, utroque margine obtusum. . . . . *P. mandschurica.*

ENUMERATIO SPECIERUM ASIAE ORIENTALIS.

Sect. I. **EUPRUNUS** Koehne, *Deutsche Dendr.* 315 (1893).
Subgen. *Euprunus*, sect. *Prunophora* C. K. Schneider, *Ill. Handb. Lauholzk.* I. 620 (1906).

1. **Prunus consociiflora** Schneider in Fedde, *Rep. Nov. Sp.* I. 54 (1905).
Western Hupeh: Changyang, April 1900, *E. H. Wilson* (Veitch Exped. No. 683). Schneider quotes also: Hupeh, *A. Henry* (No. 1309).

2. **Prunus gymnodonta** Koehne, n. sp.
Frutex inermis ramis confertis, ab initio glabris, olivaceis, autumno et secundo anno fuscis nitentibus vetustioribus nigrescentibus; gemmae vix 2 mm. longa. Folia magna ex parte fasciculata, vernatione conduplicata, intima tantum praeterea margine anguste subinvoluta; stipulae diu persistentes, 5–11 mm. longae, lineares v. subfiliformes, saepe digitatae laciniis 2–4, exterioribus multo minoribus quam interiore, glanduloso-serrulatae; petioli 4–10 mm. longi, glabri v. in canaliculo parce breviter hirtelli; lamina e basi acuta v. cuneata late ad anguste obovata v. obovato-oblonga, 4–7.5 cm. longa 1.7–4 cm. lata, subito breviter acuminata acutissima, serrata, dentibus pro parte duplicatis, acutiusculis, omnino eglandulosis, glabra v. subtus parum barbulata, nervis utrinsecus circiter 5–7 patulis, supra laete viridis, subtus pallidior. Gemmae floriferae 1–2-florae ad utrumque latus gemmae mediae foliiferae; involucra parva; pedicelli 1.5–3 mm. longi, glabri. Flores coaetanei foliis simul 1–2 cm. longis; cupula 2 mm. longa, turbinata, glabra; sepala

[1] It seems impossible at present to separate the following species by the shape and pubescence of the leaves. In young plants of *Prunus sibirica*, *P. Armeniaca* and *P. mume* the leaves are much more densely pubescent than in older plants in which the pubescence more or less disappears. The pedicels, the cupula and the sepals, too, in the species were both glabrous or pubescent, and I have not found it possible to determine the species of the section *Armeniaca* by the leaves and flowers alone. Fruits and stones only furnish reliable characters.

2 mm. longa, oblonga, obtusa, integra v. obsolete parce denticulata, glabra; petala breviter unguiculata, subspathulato-obovata, 5 mm. longa, 3 mm. lata, alba; stamina 22–24, majora ad 4 mm. longa; pistillum 2–4 mm. longum, subobsoletum (bene evolutum non vidi). Drupa ignota.

Cultivated in the Späth Arboretum near Berlin, as "*Prunus triflora*" from Mandshuria.

This species differs from *Prunus triflora* Roxburgh in the conduplicate leaves, scarcely, partly, or only slightly involute on the margin, the entirely glandless serratures of the leaves, the very short pedicels, and in the smaller flowers. The fact that in the Plums conduplicate as well as convolute leaves occur is more and more confirmed.

3. **Prunus thibetica** Franchet in *Nouv. Arch. Mus. Paris*, sér. 2. VIII. 215 (*Pl. David*. II. 33) (1885).

Western Szech'uan: Mupin, thickets, April 1869, *David*.

4. **Prunus triflora** Roxburgh. See p. 276.

In forma typica pedicelli ut cupula glaberrimi, stamina 23–32 v. raro ad 43, quorum majora ad 5–8 mm. longa.

Prunus triflora, var. pubipes Koehne, n. var.

Pedicelli dense pubescentes v. rarius subglabri. Cupula ad tertiam v. dimidiam partem usque pubescens; stamina 19–22, quorum majora ad 3 v. 3.5 mm. longa.

Cultivated in the Botanic Garden at Dahlem and in Späth's Arboretum near Berlin.

This variety differs except in its pubescence very little from the typical *Prunus triflora*, so that I can hardly believe in an hybrid origin of the var. *pubipes*. Transitional forms seem to be: *P. Masu* Hort.[1] ex Zabel in Beissner, Schelle & Zabel, *Handb. Laubholz-Ben.* 252 (nomen nudum) (1903), and *P. Botan* Hort., the pedicels and calyx of which are glabrous, or here and there sparingly pubescent.

5. **Prunus Simonii** Carrière in *Rev. Hort.* 1872, 111, t.

Introduced from China. Spontaneous specimens are unknown.

6. **Prunus platysepala** Koehne. See p. 277.

Sect. II. **ARMENIACA** (Miller) W. J. D. Koch, *Syn. Fl. Germ.* 205 (1837).

Armeniaca Miller, *Gard. Dict.*, ed. 7 (1764). — A. L. de Jussieu, *Gen.* 341 (1789).

7. **Prunus anomala** Koehne, n. sp.

Rami hornotini subglabri, nigrofusci, in sicco tenuiter longitudinaliter rugoso-striati, annotini glabri, sat graciles; gemmae rotundato-ovatae, 1.5–2.5 mm. longae. Stipulae ignotae; petioli 10–12 mm. longi, glabri, eglandulosi; lamina e basi late cuneata obovato-oblonga v. obovata, suprema late inverse oblonga, 6–7.3 cm. longa, 2.5–3.5 cm. lata, longe caudata, simpliciter v. hinc inde subduplicato-crenata, dentibus obtusis, glandula parva nigrescenti terminatis, supra glabra, subtus glabra v. in nervorum axillis barbulata, nervis utrinsecus 4–5, subtus paullo pallidior costa nervisque fuscescentibus, membranacea. Flores solitarii in foliorum adultorum axillis; involucrum vix 2 mm. longum; pedicelli 6–7 mm. longi, glabri; cupula patelliformis, 2.5 mm. longa 5 mm. lata, glabra; sepala rotundata, circiter 4 mm. longa lataque, erecto-patentia, tenuiter breviter ciliata ceterum glabra; petala breviter unguiculata, orbicularia, circiter 8 mm. longa, 7.3 mm. lata; stamina 54, petalis subaequilonga, ad 7 mm. longa; pistillum 12 mm. longum, ovarium ut styli basis densissime breviter hirtello-tomentosum, stylus stamina superans.

[1] *Masu* is an incorrect spelling; it ought to be *Maru* (= round in Japanese).

Kwang-tung: Hongkong, a. 1885–86, *E. Faber* (distributed as *P. japonica*).

This species is remarkable in the fact that its solitary flowers are borne in the axils of full grown leaves which resemble those of *Prunus mume*.

8. **Prunus mume** Siebold & Zuccarini. See p. 278.

Prunus mume var. **Goethartiana** Koehne, n. var.

Folia ut in *P. mume* typica, majuscula, 6.5–10 cm. longa, 4–6.1 cm. lata, subtus in costa dense, in nervis multo laxius, ceterum sparsim villosa. Pedicellus brevissimus, puberulo-velutinus; cupula 4.5 mm. longa, subsemiglobosa, extus puberulo-velutina; sepala 5 mm. longa, reflexa, late ovata, acutiuscula v. obtusa, ciliolata extus puberulo-velutina; petala 16 mm. longa, 10.5 mm. lata; stamina 37, majora 11 mm. longa; ovarium villoso-tomentosum ut styli pars dimidia inferior.

Japan, *Buerger*.

This variety I have named in compliment to Professor Goethart, who has kindly sent me valuable material from the Rijks-Herbarium at Leyden. A form of *Prunus mume* with completely pubescent cupula and pubescent sepals has not been described before.

I hope that the flowering and the leaf bearing branches belong together. This, however, is not always the case in the older collections from Japan.

The following Japanese garden forms have been distinguished.

Prunus mume, var. **typica** Maximowicz. See p. 278.

Prunus mume, var. **pleiocarpa** Maximowicz, in *Bull. Acad. Sci. St. Pétersbourg*, XXIX. 85; in *Mél. Biol.* XI. 673 (1883).

Prunus mume, f. **laciniata** Maximowicz, l. c. 672.

Prunus mume, var. **microcarpa** Makino in *Tokyo Bot. Mag.* XXII. 71 (1908).

Prunus mume, var. **viridicalyx** Makino, l. c.

Prunus mume, var. **cryptopetala** Makino, l. c.

Prunus mume, var. **Bungei** Makino, l. c.

9. **Prunus sibirica** Linnaeus, *Spec.* I. 474 (1753).

Armeniaca sibirica Persoon, *Syn.* II. 36 (1807).

Prunus Armeniaca, var. *sibirica* K. Koch, *Dendr.* I. 88 (1869). — Maximowicz in *Bull. Acad. Sci. St. Pétersbourg*, XXIX. 86; in *Mél. Biol.* XI. 673 (1883).

Southeastern Mongolia, also in Dahuria.

Armeniaca Davidiana Carrière in *Rev. Hort.* 1879, 236, fig. 46–48, seems to be closely related to *P. sibirica* on account of the dehiscent epicarp and the smooth stone, characters which Maximowicz emphasizes for *P. sibirica*. He attributes to the latter "ramos patentes," while *Armeniaca Davidiana* has pendulous branches; it is therefore possibly a pendulous form of *P. sibirica*. Carrière gives very generally China as the habitat of his *Armeniaca Davidiana;* if it should have come from northern China, its range would be close to that of *P. sibirica*, which is found in southeastern Mongolia and in Dahuria.

10. **Prunus Armeniaca** Linnaeus. See p. 278.

Prunus Armeniaca, var. **holosericea** Batalin in *Act. Hort. Petrop.* XIV. 167 (1895).

Eastern Tibet; between Litang and Batang, June 1, 1893, *V. A. Kashkarov*.

I have not seen specimens of this variety.

According to the observations which I have made on young cultivated plants of the species of the section *Armeniaca* it seems hardly advisable to distinguish varieties by the pubescence of the leaves (see footnote, p. 279).

Prunus Armeniaca, var. **ansu** Maximowicz, in *Bull. Acad. Sci. St. Pétersbourg*, XXIX. 87; in *Mél. Biol.* XI. 676 (1883).

Prunus Ansu Komarov in *Act. Hort. Petrop.* XXII. 541 (1904).

Prunus armeniaca, var. *Anzu* Matsumura in *Tokyo Bot. Mag.* XIV. 134 (1900).

Cultivated in Japan according to Maximowicz. Matsumura cites the following specimens from China: cultivated at Chifu, prov. Shangtung, October 7, 1879, *Mrs. Yoshi Takagaki* (No. 108), and April 30, 1898, *T. Takagaki* (No. 664); near the hill of Nansi-shan, October 17, 1897, *Mrs. Yoshi Takagaki* (No. 275); Nan-shan, April 26, 1898, *T. Takagaki* (No. 663, 694).

11. **Prunus mandschuria** Koehne, *Deutsche Dendr.* 318 (1893).

Prunus Armeniaca, var. *mandshurica* Maximowicz in *Bull. Acad. Sci. St. Pétersbourg*, XXIX. 87; in *Mél. Biol.* XI. 675 (1883).

Mandshuria, Northern Korea.

FLACOURTIACEAE.

Determined by E. H. Wilson.

XYLOSMA Forst.

Xylosma racemosum Miquel in *Ann. Mus. Lugd.-Bat.* II. 155 (1865–66).—Hemsley in *Journ. Linn. Soc.* XXIII. 57 (1886).

Hisingera racemosa Siebold & Zuccarini, *Fl. Jap.* I. 169, 189, t. 88, 100 fig. III. 1–14 (1835).
Hisingera japonica Siebold & Zuccarini in *Abh. Akad. Münch.* IV. 2, 168 (*Fl. Jap. Fam. Nat.* I. 60) (1845).
Xylosma japonicum Gray in *Mem. Am. Acad.* VI. 381 (1854). — Hance in *Jour. Bot.* VIII. 275 (1870); XVI. 8 (1878).
Flacourtia chinensis Clos in *Ann. Sci. Nat.* sér. 4, VIII. 219 (1857).
Myroxylon racemosum O. Kuntze, *Rev. Gen. Pl.* I. 44 (1891).

Chekiang: vicinity of Ningpo, 1908, *D. Macgregor*. Korea: Quelpaert, woods, October 1908, *E. J. Taquet* (No. 567).

The type does not occur in central or western China, and all the specimens we have seen from these regions are referable to the following variety.

Xylosma racemosum, var. **pubescens** Rehder & Wilson, n. var.

Myroxylon racemosum Diels in *Bot. Jahrb.* XXIX 478 (1900).—Pampanini in *Nuov. Giorn. Bot. Ital.* XVII. 674 (1900).

A typo recedit ramulis hornotinis pubescentibus.

Western Hupeh: Ichang, commonly planted around shrines, alt. 40–600 m., September and December 1907 (No. **1253**, in part, type; tree 6–20 m. tall, fruit black); Ichang and immediate neighborhood, *A. Henry* (No. **7766**). Western Szech'uan: Ya-chou Fu, alt. 300–1000 m., September and November 1908 (No. **1253**, in part; tree 16–25 m. tall). Yunnan: Mengtze, ravine 1500 m. *A. Henry* (No. 10804).

This is the Tung-ching (Winter-green) of the Chinese and one of the handsomest of their evergreen trees. It is commonly found planted over shrines and tombs. The tree reaches a height of 20 m. and is more or less spiny particularly while young and on the short inner branches. Photographs of this tree will be found under Nos. 2, 12, 472, 533, 627 and 0164 of Wilson's photographs and also in his *Vegetation of Western China*, Nos. 191, 217 and 498–500.

The plant collected by Piasezkii in Shensi and referred by Maximowicz according to Hemsley in *Jour. Linn. Soc.* XXIII. 57 (1886) to *Xylosma senticosum* Hance is more probably *Xylosma racemosum*, var. *pubescens*, since it is unlikely that a subtropical plant would be found so far north. Both agree in having pubescent branches, but the leaves in Hance's plant are described as only 6–8 lines long.

Xylosma Dunnianum Léveillé in Fedde, *Rep. Nov. Sp.* IX. 455 (1911) apparently belongs to some other genus since he describes petals and says they are "twice as long as the sepals."

Two other species of *Xylosma* occur in Yunnan:

Xylosma longifolium Clos in *Ann. Sci. Nat.* sér. 4, VIII. 231 (1857). — Hooker f., *Fl. Brit. Ind.* I. 194 (1872).

Yunnan: Mengtze, alt. 1500 m., *A. Henry* (Nos. 9901, 9901[a] 9901[b]); Szemao, alt. 1600 m., *A. Henry*, (No. 12635); Talang, alt. 1600 m., *A. Henry* (13334).

Xylosma controversum Clos in *Ann. Sci. Nat.* sér. 4, VIII. 231 (1857). — Hooker, f., *Fl. Brit. Ind.* I. 194 (1872).

Yunnan: Szemao, alt. 1300–2000 m., *A. Henry* (Nos. 11884[c], 12757).

CARRIEREA Franch.

Carrierea calycina Franchet in *Rev. Hort.* 1896, 497, fig. 170. — Diels in *Bot. Jahrb.* XXIX, 478 (1900). — Bean in *Kew Bull. Misc. Inform.* XXII. 353 (1909).

Western Szech'uan: Mupin, side of streams, alt. 600–1100 m., June and November 1908 (No. **1212**, in part; tree 6–10 m. tall, 1–1.60 m. girth, flowers white); Niu-tou-shan, west of Kuan Hsien, alt. 1600 m., June 1908 (**1212**, in part; tree 6 m. tall, 30 cm. girth, flowers white); Hung-ya Hsien, side of streams, alt. 1000 m., September 1908 (No. **1212**, in part; tree 6–10 m. tall, 1–2 m. girth); without precise locality, ravines, 1300 m., July 1903 (Veitch Exped. No. 3227); Mt. Omei, June 1904 (Veitch Exped. No. 4752). Western Hupeh: without precise locality (Veitch Exped. No. 1104).

This handsome tree is very rare in western Hupeh, but common in western Szech'uan, especially by the side of woodland streams up to 1200 m. altitude. Whilst not forming a tall or even large tree, the much-branched and flat head is wide-spreading; the bark is grey and usually smooth, but in very old trees it becomes furrowed and corrugated. The flowers are ivory-white and of much substance.

A second species of this genus, *Carrierea Dunniana* Léveillé, is described in Fedde, *Rep. Nov. Sp.* IX. 459 (1911), but we have seen no specimens and the description is too meagre.

IDESIA Maxim.

Idesia polycarpa Maximowicz in *Bull. Acad. Sci. St. Pétersbourg*, sér. 3, X, 485; in *Mél. Biol.* VI. 19 (1866).—Carrière in *Rev. Hort.*

1872, 174, fig. 19, 20. — Ito, *Fig. Descr. Pl. Koishik. Bot. Gard.* II. t. 11A, 11B (1883). — Lavallée in *Icon. Arb. Segrez.* 41, t. 13 (1885). — Hooker f. in *Bot. Mag.* CXI. t. 6794 (1885). — Shirasawa, *Icon. Ess. For. Jap.* I. t. 76 (1900). — Diels in *Bot. Jahrb.* XXIX. 478 (1900).

Idesia polycarpa, var. *latifolia* Diels in *Bot. Jahrb.* XXIX. 478 (1900).
Idesia polycarpa, var. *intermedia* Pampanini in *Nuov. Giorn. Bot. Ital.* XVII. 673 (1910).
Polycarpa Maximowiczii Linden ex Carrière in *Rev. Hort.* 1868, 330, fig. 36.
Flacourtia japonica Hort. ex Lavallée, l. c. (synon.).

Western Hupeh: north and south of Ichang, woods, alt. 1300–2000 m., June and October 1907 (No. **487**; tree 8–15 m. tall, about 1 m. girth, flowers yellow, fruits vermilion, bark very light grey); without precise locality, June and October 1900 (Veitch. Exped. No. 930). Formosa: Bankinsing, mountains, *A. Henry* (No. 429). Korea: Quelpaert, side of streams, rare, alt. 900 m., *E. J. Taquet* (Nos. 1466, 4096).

A very common tree in western Hupeh. The foliage varies considerably in size and shape, and with the mass of material before me I must consider the above named varieties very slight forms not deserving varietal rank. A photograph of this tree will be found under No. 560 of Wilson's photographs and also in his *Vegetation of Western China*, No. 254.

Idesia polycarpa, var. **vestita** Diels in *Bot. Jahrb.* XXIX. 478 (1900).
Western Szech'uan: Wa-shan, woodlands, alt. 1600–2500 m., June and September 1908 (No. **962**; tree 6–15 m. tall, about 1 m. girth, flowers yellow, fruits brick red); without precise locality, woods, rare, alt. 2300 m., July 1903 (Veitch. Exped. No. 3226). Kiangsi; Kuling, thickets, not common, alt. 1300 m., July 1907 (No. **1612**; bush 3 m. tall).

A well-marked variety having the under side of the leaves densely pubescent and the upper surface rugose.

POLIOTHYRSIS Oliv.

Poliothyrsis sinensis Oliver in *Hooker's Icon.* XIX. t. 1885 (1889). — Bean in *Kew Bull. Misc. Inform.* XXII. 355 (1909).
Western Hupeh: north and south of Ichang, woodlands, alt. 300–1100 m., July and October 1907 (No. **500**, in part; tree 6–13 m. tall, about 1 m. girth, flowers yellowish-white); Fang Hsien, alt. 1100 m., July 1907 (No. **500**, in part); San-yu-tung glen, near Ichang, alt. 300 m., June 1907 (No. **500**, in part; bush 4 m. tall); without precise locality, July and November 1900 and 1901 (Veitch Exped. Nos. 1475,

2444, 2684). Western Szech'uan: west and near Wên-ch'uan Hsien, woods, alt. 1000–1300 m., July and October 1908 (No. 500[a]; tree 10 m. tall, 65 cm. girth, flowers nearly white).

A common, rather slender, loosely branched tree with grey bark deeply furrowed in adult, smooth in young trees. The leaves vary considerably in size and shape and also in degree of serration and pubescence. A colloquial name for this tree around Ichang is "Yu-kuei-chou."

ITOA Hemsl.

Itoa orientalis Hemsley in *Hooker's Icon.* XXVII. t. 2688 (1901).

Western Szech'uan: thickets around base of Mt. Omei, alt. 600 m., September 1908 (No. 3057; small tree, 6 m. tall); ravine, Mt. Omei, alt. 600 m., October 1903 (Veitch Exped. No. 3228). Yunnan: Mengtze, alt. 1600 m., *A. Henry* (No. 9408).

Usually a slender tree, with light grey bark and tough wood.

STACHYURACEAE.

Determined by Alfred Rehder.

STACHYURUS Sieb & Zucc.

Stachyurus chinensis Franchet in *Jour. de Bot.* XII. 254 (1898). — Diels in *Bot. Jahrb.* XXIX. 475 (1900).

Stachyurus praecox Diels in *Bot. Jahrb.* XXIX 475 (non Siebold & Zuccarini) (1900).

Kiangsi: Kuling, thickets, common, alt. 1300 m., July 30, 1907 (No. **1725**). Western Hupeh: north and south of Ichang, ravines, alt. 300–1000 m., April and August 1907 (No. **89**); Changyang Hsien, alt. 300–1000 m., August 1907 (No. **192**, fruiting branches); Fang Hsien, thickets, alt. 2000 m., September 1907 (No. **292**); Hsing-shan Hsien, thickets, alt. 1000–1800 m., May and June 1907 (No. **2556**). Ichang, glens, March 16, 1900 (Veitch Exped. No. 125); without locality, *A. Henry* (Nos. 2002, 3770, 6917, 5744). Shensi: Tai-pei-shan, 1910, *W. Purdom.* Szech'uan: Nanch'uan, *A. von Rosthorn* (No. 2000). Yunnan: Longki (flowers) and Chang-fong-shan (fruits), *J. M. Delavay* (in herb. Paris).

The Kiangsi and Hupeh plants differ from the type in the somewhat thinner and sometimes subcordate leaves. In addition to the characters given by Franchet, this species may be distinguished from *S. praecox* Siebold & Zuccarini by the broader and crenately serrate leaves, abruptly contracted into a long acumen, by the greenish or dull brown color of the one year old branchlets, and by the smaller fruits, while in *S. praecox* the serratures of the generally oblong-ovate leaves are more flaring and the one-year old branchlets are chestnut brown and lustrous. I have not been able to find among the Chinese specimens any representing the true *S. praecox*, and I believe that all the Chinese specimens referred to that species belong to *S. chinensis* or possibly to *S. himalaicus*.

Stachyurus himalaicus Hooker f. & Thomson apud Bentham in *Jour. Linn. Soc.* V. 55 (1861). — Thiselton-Dyer in Hooker f., *Flor. Brit. Ind.* I. 288 (1875).

Western Hupeh: Changyang Hsien, alt. 300–1000 m., April 1907 (No. **192**[a]); without locality, *A. Henry* (Nos. 1287[a], 2913, 3040, 3362, 3449[a]). Szech'uan: without locality, *A. Henry* (No. 7139).

Yunnan: Mengtze alt. 1700–2000 m., *A. Henry* (Nos. 10138, 10138[a], 10543). Formosa: Bankinsing, *A. Henry* (No. 35).

Stachyurus himalaicus is easily distinguished from the preceding species by the narrower, oblong or oblong-lanceolate, finely serrate leaves and by the smaller flowers with the style scarcely exceeding the petals. No. 2913 differs from the type in its broader less finely serrate leaves, and No. 10138[a] in its subpersistent leaves, the flowering branches holding still part of the leaves.

Stachyurus yunnanensis Franchet in *Jour. de Bot.* XII. 253 (1898).

Western Szech'uan: Hung-ya Hsien, foot of Mt. Wa-wu, alt. 1300 m., September 13, 1908 (No. **2555**). Yunnan: Mo-so-yin, gorges of the Pee-cha-ho, *J. M. Delavay* (No. 822).

Stachyurus yunnanensis, var. **pedicellatus** Rehder, n. var.

A typo recedit foliis grossius et remotius serratis et praecipue pedicellis elongatis, ea fructuum immaturorum 3–5 mm. longis medio articulatis, et racemis rigidioribus breviter pedunculatis.

Eastern Szech'uan: Yung-yang Hsien, cliffs, alt. 1800 m., July 1910 (No. **4541**).

This variety differs in its distinctly pedicelled fruits not only from the type of the species, but also from the other species of Stachyurus which all have very short stalked or nearly sessile flowers and fruits.

STYRACEAE.

Determined by ALFRED REHDER.

STYRAX L.

Styrax dasyanthus Perkins in *Bot. Jahrb.* XXXI. 485 (1902); in Engler, *Pflanzenr.* IV.-241, 31 (1907).

Western Hupeh: *A. Henry* (No. 5977, type); north and south of Ichang, thickets, alt. 300–1000 m., June and October 1907 (No. **372**, in part; bush or small tree, 2–8 m. high, flowers white); Hsing-shan Hsien, ravines, rare, alt. 500 m., June 4, 1907 (No. **2572**; large bush, 8 m. high, flowers pure white, fragrant); without precise locality, June 1901 (Veitch Exped. No. 1106); Chienshi, July 1900 (Veitch Exped. No. 1275, in part (flowering specimen); tree 3 m. high, flowers white). Western Szech'uan: Kiating Fu, June 1903 (Veitch Exped. No. 4066; 4 m. high).

No. 2572 differs from the type in having the lower surface of the larger and broader leaves sparingly furnished with small fascicled hairs, and forms thus a transition to the following variety. In No. 4066 the leaves are broader and thinner and less closely veined than in the type and the inflorescence is looser.

Styrax dasyanthus, var. **cinerascens** Rehder, n. var.

A typo recedit foliis subtus initio dense albido- v. cinereo-tomentosis demum plerumque sparsius pilis stellatis conspersis, sed in foliis superioribus innovationum tomento denso albido persistente praeditis.

Western Hupeh: Chang-lo Hsien, thickets, ravines, etc., alt. 600–1000 m., May and June 1907 (No. **2571**, type; bush 5 m. high); Hsing-shan Hsien, alt. 300–600 m., June 6, 1907 (No. **372**[a]; tree 10 m. high, flat-topped, flowers white, fragrant); Chien-shi, July 1900 (Veitch Exped. No. 1275, in part; fruiting specimen).

In general appearance, in the flowers and in the shape and venation of the leaves this variety agrees exactly with the type and therefore I cannot consider it anything else but a variety of *S. dasyanthus*.

Styrax philadelphoides Perkins in Engler, *Pflanzenr.* IV.-241, 32 (1907).

Kiangsi: Kuling, side of streams, common, alt. 1300 m., July 28, 1907 (No. **1732**, 1–2 m. high). Fokien: April to June 1905, *S. T. Dunn* (Hongkong Herb. No. 2899). Chekiang: Ningpo, 1908,

D. Macgregor; without date, *W. M. Cooper*; Hang-chau, *F. N. Meyer* (No. 440); Kiangsu: Chinkiang, *W. R. Carles* (No. 439).

Styrax calvescens Perkins in Engler, *Pflanzenr.* IV. -241, 32 (1907). Kiangsi: Kuling, thickets, common, alt. 1300 m., August 1, 1907 (No. 1733). Hupeh: *A. Henry* (No. 721 ex Perkins).

I refer not without hesitation Wilson's No. 1733, which has only young fruit, to this species of which I have not seen the type. It differs from the description in its denser tomentum, even the mature leaves being densely grayish or whitish tomentose beneath; otherwise the specimen resembles closely *S. philadelphoides* Perkins, to which it seems to bear the same relation that *S. dasyanthus*, var. *cinerascens* Rehder bears to typical *S. dasyanthus* Perkins.

Styrax suberifolius Hooker & Arnott, *Bot. Voy. Beechey*, 196, t. 40 (1841). — De Candolle, *Prodr.* VIII. 261 (1844). — Bentham in *Hooker Jour. Bot. & Kew Gard. Misc.* IV. 304 (1852); *Fl. Hongkong*, 213 (1861). — Hemsley in *Jour. Linn. Soc.* XXVI. 77 (1889). — Perkins in Engler, *Pflanzenr.* IV.-241, 60 (1907).

Cyrta suberifolia Miers in *Ann. Mag. Nat. Hist.*, ser. 3, III. 279 (1859); *Contrib. Bot.* I. 182, t. 29 (1851–61).

Styrax caloneurus Perkins in *Bot. Jahrb.* XXXI. 484 (1902).

Styrax suberifolius, var. *caloneurus* Perkins in Engler, *Pflanzenr.* IV.-241, 61 (1907).

Western Hupeh: Changyang Hsien, side of streams, alt. 1000 m., June 1907 (No. **2570**, in part; thin tree 6–10 m. high, girth 30–45 cm., flowers white); Patung Hsien, thickets, rare, alt. 800 m., May 1907 (No. **2570**, in part; thin tree, 7 m. high, girth 30 cm.); without precise locality, June 1900 (Veitch Exped. No. 1202); *A. Henry* (No. 7704). Yunnan: Szemao, alt. 1500–1700 m., *A. Henry* (Nos. 11885, 11885*a*, 11885*b*). Kwang-tung: Hongkong, *C. Ford;* Hongkong, Nov. 4, 1903, *C. S. Sargent.* Fokien; April to June 1905, *S. T. Dunn* (Herb. Hongkong Bot. Gard. No. 2896). Formosa: Tamsui, 1864, *R. Oldham* (No. 293); South Cape, *A. Henry* (Nos. 536, 592, 1369).

With the material before me I am not able to separate the form of western China from that of the southeastern provinces; the inflorescence is panicled in both forms, though the plate accompanying the original description shows a few-flowered inflorescence. The western specimens, however, have generally somewhat narrower leaves more cuneate at the base.

Styrax Veitchiorum Hemsley & Wilson in *Kew Bull. Misc. Inform.* 1906, 161. — Perkins in Engler, *Pflanzenr.* IV.-241, 69 (1907).

Western Hupeh; Fang Hsien, side of streams, rare, alt. 1000 m., May 19 and September 1907 (No. **308**; tree 4–12 m. high, girth 0.30–1 m., flowers white); same locality, June 1901 (Veitch Exped. No. 2015,

type); Kiangsi: Kuling, side of streams, alt. 1300 m., July 29, 1907 (No. **1734**).

The specimen from Kiangsi apparently belongs here, though it is without flowers or fruits; it bears the same large galls as are found in *S. Benzoin* Dryander and other species.

Styrax Hemsleyanus Diels in *Bot. Jahrb.* XXIX. 530 (1900). — Perkins in Engler, *Pflanzenr.* IV.-241, 70 (1907). — Hutchinson in *Bot. Mag.* CXXXVI. t. 8339 (1910).

Western Hupeh: Changyang Hsien, woods, common, alt. 1300–2000 m., June 1907 (No. **2574**; tree 6–10 m. high, flowers white); South Wushan, June 1900 (Veitch Exped. No. 915); without precise locality, *A. Henry* (Nos. 5676, 5977, 6895). Western Szech'uan: Wa-shan, thickets, alt. 2000–2700 m., June 1908 (No. **2578**; tree 5–8 m. high, flowers white); Nanch'uan, *A. v. Rosthorn* (No. 2078).

No. 2578 differs from the type in the somewhat larger flowers and shorter racemes, also in the generally narrower leaves which are finely denticulate.

Styrax Hemsleyanus, var. **griseus** Rehder, n. var.

A typo recedit foliis subtus laxe pilis stellatis griseis facile detergendis obtectis supra sparsius pilis stellatis conspersis, petiolis et axibus inflorescentiae stellato-tomentosis, calyce brunneo-fusco-tomentoso.

Western Hupeh: Changyang Hsien, woods, alt. 1300–2000 m., June 1907) No. **2574**[a]; tree 6–10 m. high, flowers white).

Though at first sight this form looks rather distinct, I am not able to find any other character except the pubescence to separate it from typical *S. Hemsleyanus*; the leaves are rather large, 10–13 cm. long and 7–8.5 cm. broad and only finely denticulate.

Styrax roseus Dunn in *Kew Bull. Misc. Inform.* 1911, 273.

Western Szech'uan: Ta-hsiang-ling, Chingchi Hsien, thickets, alt. 1000–1300 m., May 1908 (No. **2577**; bush 2–3 m., flowers white); Mupin, thickets, alt. 1000–1300 m., June 1908 (No. **2575**; large bush 3–7 m. high); Wa-shan, rare, alt. 2800 m., July 1903 (Veitch. Exped. No. 4065, type; bush 3 m., flowers white).

The flowers are white according to Wilson's notes on the labels, though in the dried state they have a pinkish hue which also appears in specimens of other species. The bright orange-yellow color of the calyx and of the winter-buds seems to be characteristic of this species.

Styrax japonicus Siebold & Zuccarini, *Fl. Jap.* I. 53, t. 23 (1835). — De Candolle, *Prodr.* VIII. 266 (1844). — Regel in *Gartenfl.* XVII, 193, t. 583 (1868); XXXVI. 362, fig. 89 (1887). — *Gard. Chron.* ser.

2, XXIV. 745, fig. 166 (1885). — Carrière in *Rev. Hort.* 1888, 320, fig. 67. — Dippel, *Handb. Laubholzk.* I. 318, fig. 207 (1889). — Hemsley in *Jour. Linn. Soc.* XXVI. 76 (1889). — Shirasawa, *Icon. Ess. For. Jap.* I. 124, t. 80, fig. 1–12 (1900). — Perkins in Engler, *Pflanzenr.* IV.-241, 73 (1907). — Schneider, *Ill. Handb. Laubholzk.* II. 580, fig. 376 n–p, 377 i–m (1911).

Styrax serrulatum Hooker f. in *Bot. Mag.* XCVIII. t. 5950 (non Roxburgh) (1872). — Gilg in *Bot. Jahrb.* XXXIV. Beibl. LXXV. 58 (1904).[1]
Cyrta japonica Miers in *Ann. Mag. Nat. Hist.* ser. 3, III. 279 (1859); *Contrib. Bot.* I. 182 (1851–61).

Western Hupeh: north and south of Ichang, ravines, alt. 300 m., May 3, 1907 (No. **2573**; bush 2–5 m. high, flowers white); without precise locality, May 1900 (Veitch Exped. 2756); Ichang, *A. Henry* (No. 2815); without locality, *A. Henry* (Nos. 3876, 6120); South Wushan, *A. Henry* (Nos. 5495, 5639[a], 5779). Western Szech'uan: Nanch'uan, *A. von Rosthorn* (No. 2423). Shantung: Tsingtau, 1901, *Zimmermann* (No. 422, determined as *S. serrulatum*). Korea: Quelpaert, *E. J. Taquet* (Nos. 725, 727, 1109, 1876, 3033, 3034). Also n Japan.

The Chinese form differs from the type in the generally larger and shorter petioled leaves and in the more spreading corolla lobes which give the flowers a star-like shape. *Styrax seminatum* (1901) Farges, quoted by Miss Perkins (l. c.) as a synonym, is not a name, but signifies sowing No. 1901 collected by Farges; seminatum is the term employed by Vilmorin for all undetermined sowings or seed lots.

A very distinct variety is the following:

Styrax japonicus, var. **calycothrix** Gilg in *Bot. Jahrb.* XXXIV. Beibl. LXXV. 58 (1904).

Shantung: Lau-shan, August 1907, *F. N. Meyer* (No. 277).

Differs from the type in the densely stellate-pubescent calyx and in the obovate leaves long-acuminate and at the base very gradually narrowed into the petiole.

Styrax Perkinsiae Rehder, n. sp.

Frutex 2–3-metralis; ramuli tomentosi purpureo-virides v. obscure virides, puberuli et stellato-pilosi, annotini glabrescentes, ut vetustiores griseo-fusci; gemmae tomento fulvo v. flavescente vestitae. Folia decidua membranacea, ovalia v. ovali-oblonga, acuminata, basi cuneata v. late cuneata v. interdum fere rotundata, margine minute denticulata, 4.5–7.5 cm. longa et 2.3–3.7 cm. lata, supra obscure viridia, sparse stellato-pilosa, demum glabra, subtus albida, dense minute stellato-tomentosa, ad venas flavescentes sparsius stellato-pilosa, venis utrinsecus 6–8 supra paullo, subtus ut venulae transversae manifeste

[1] According to a specimen of No. 422 in the Arnold Arboretum herbarium; the true *S. serrulatum* Roxburgh does not seem to occur in China at all.

elevatis; petioli stellato-pilosi, 2–3 mm. longi. Inflorescentia racemosa, 2–3-flora, interdum infra floribus solitariis axillaribus, in apice ramulorum perbrevium lateralium; pedicelli 3–5 mm. longi; calyx campanulatus, 5–6 mm. longus et 4–5 mm. diam., ut pedicelli albido-tomentosus et insuper pilis stellatis fulvis majoribus instructus, intus glaber marginem versus tantum pilis minutis obliquo-stellatis conspersus, minute et irregulariter denticulatus; corolla in aestivatione imbricata, alba, circiter 2 cm. longa, lobis oblongis acutis 15 mm. longis et 6.2 mm. latis extus intusque stellato-pilosis, tubo intus glabro extus tantum basin versus glabro; stamina petalis paullo breviora, filamentis quam antherae anguste oblongae margine stellato-pilosae duplo longioribus triente superiore excepto parce stellato-pilosis; ovarium subglobosum, tomentosum, imperfecte triloculare; stylus petalis fere aequilongus v. ea paullo superans, in quadrante inferiore tantum parce stellato-pilosus. Fructus ovoideus, circiter 8 mm. longus, apice breviter mucronatus, stellato-tomentosus, calyce persistente sustentus.

Western Szech'uan: near Wa-shan, thickets, alt. 2000 m., July and September 17, 1908 (No. **2576**).

This species seems to be nearest related to *S. officinalis* Linnaeus, which is easily distinguished by the obtuse and entire leaves, the larger subglobose fruit with usually a large part of the style persistent and the homomorphous tomentum of the calyx.

Styrax Wilsonii Rehder, n. sp.

Frutex 1–2-metralis ramis divaricatis gracilibus; ramuli hornotini dense minute stellato-pilosi, demum glabrescentes, annotini cinereo-brunnei, vetustiores obscure grisei; gemmae flavo-stellato-tomentosae. Folia membranacea decidua, rhombico-ovata v. ovalia v. obovata, acutiuscula v. obtusa, ea innovationum saepe breviter acuminata acumine obtuso, basi cuneata v. late cuneata, 1–2.5 cm. longa et 7–10 mm. lata, triente inferiore marginis excepto denticulata v. paucidentata, ea innovationum saepius grossius angulato-dentata et ad 4 cm. longa et 2.6 cm. lata, supra obscure viridia, sparse stellato-pilosa, demum glabrescentia, interdum pilis sparsis rigidis accumbentibus praedita, subtus albida, dense minuteque stellato-tomentosa, interdum ad nervos praesertim in foliis inferioribus pilis fasciculatis majusculis fulvis praedita, nervis utrinsecus 4–6 rectis, supra leviter impressis subtus elevatis; petioli 1–2 mm. longi, stellato-tomentosi. Inflorescentia racemosa, 3–5-flora, circiter 2 cm. longa, in apice ramulorum lateralium perbrevium 3–4-foliatorum; pedicelli 2–3 mm. longi; calyx campanulatus, 5 mm. longus, 3.5 mm. diam., distincte 5–dentatus,

dentibus inaequalibus triangulari-ovatis acutiusculis 1–1.5 mm. longis interdum denticulatis, extus dense stellato-tomentosus et pilis fasciculatis majusculis aurantiaco-fulvis conspersus ut pedicelli et axis inflorescentiae; intus in parte inferiore glaber, sursum pilis pauci-radiatis unilateralibus instructis; corolla in aestivatione imbricata, alba, 13 mm. longa, lobis oblongis acutis extus intusque minute stellato-tomentosis 9 mm. longis et 4 mm. latis, tubo intus toto et extus basin versus glabro; stamina petalis paullo breviora filamentis basi dilatatis, quadrante superiore excepto pilis stellatis conspersis 6 mm. longis, antheris lineari-oblongis glabris v. margine pilis perpaucis praeditis 3.5 mm. longis; ovarium dense stellato-tomentosum, imperfecte triloculare loculis pauci-ovulatis; stylus corollam paullo superans, glaber. Fructus subglobosus, apice mucronulatus, tomentosus, 5–7 mm. diam., basi calyce persistente instructa; semen unicum, globoso-ovoideum, brunneum.

Western Szech'uan: Mupin, thickets, alt. 1300–1700 m., June, September and October 1908 (No. 884).

A very distinct species apparently related to *S. officinalis* Linnaeus and more closely to the preceding species, but easily distinguished from all allied species by the small more or less dentate leaves, the smaller flowers and smaller fruits. *Styrax Wilsonii* is in cultivation, and three year old plants flower and fruit freely when hardly a foot high. It will be figured in the July number of the Botanical Magazine.

ALNIPHYLLUM Matsum.

Alniphyllum Fortunei Perkins in Engler, *Pflanzenr.* IV.-241, 91, fig. 14 (1907).

Halesia Fortunei Hemsley in *Jour. Linn. Soc.* XXVI. 75 (1889).
Alniphyllum macranthum Perkins in *Bot. Jahrb.* XXXI. 488 (1902).
Alniphyllum pterospermum Hemsley in *Hooker's Icon.* VIII. 279, t. 2791 (pro parte) (1905). — Hayata in *Jour. Coll. Sci. Univ. Tokyo,* XXII. 232 (pro parte) (1906).
Alniphyllum megaphyllum Hemsley & Wilson in *Kew Bull. Misc. Inform.* V. 162 (1906).

Western Szech'uan: Yung-ching Hsien, foot of Mt. Wa-wu, alt. 1500 m., September 8, 1908 (No. 2048; tree 25 m. high, 2 m. girth). Yunnan: Mengtze, mountain forest to southeast, alt. 1600 m., *A. Henry* (No. 10593); Szemao, alt. 1500–1600 m., *A. Henry* (Nos. 11608, 11957, 11957*a*).

A photograph of this tree will be found under No. 321 of Wilson's photographs and also in his *Vegetation of Western China*, No. 121.

PTEROSTYRAX Sieb. & Zucc.

Pterostyrax corymbosus Siebold & Zuccarini, *Fl. Jap.* I. 96, t. 47 (1835). — De Candolle, *Prodr.* VIII. 269 (1844). — Miquel in *Ann. Mus. Lugd.-Bat.* III. 101 (1887); *Prol. Fl. Jap.* 265 (1866–67). — Perkins in Engler, *Pflanzenr.* IV.-241, 100, fig. 17 (1907). — Schneider, *Ill. Handb. Laubholzk.* II. 563, fig. 380 e–i (1911).

Halesia corymbosa Nicholson, *Dict. Gard.* II. 109 (1886). — Gürke in Engler & Prantl, *Nat. Pflanzenfam.* IV.-1, 177 (1891).

Kiangsi: Kuling, thickets, common, alt. 1300 m., July 29, 1907 (No. **1603**; tree 5 m. tall). Also in Japan.

This species has not been reported before from China. The Kiangsi specimen differs from the typical form only in the much reduced teeth of the leaves; the leaves are minutely and rather remotely denticulate and the smaller ones nearly entire, but similar forms also occur in Japan.

Pterostyrax hispidus Siebold & Zuccarini in *Abh. Akad. Münch.* IV. 3, 132 (*Fl. Jap. Fam. Nat.* II. 8) (1846). — Carrière in *Rev. Hort.* 1875, 307, fig. 50; 1876, 394, fig. 83, 84. — Koehne, *Deutsch. Dendr.* 486, fig. 80 (1893). — Dippel, *Handb. Laubholzk.* I. 312, fig. 202 (1889). — Perkins in Engler, *Pflanzenr.* IV.-241, 102, fig. 18 (1907). — N. E. Brown in *Bot. Mag.* CXXXVI. 8329 (1910). — Schneider, *Ill. Handb. Laubholzk.* II. 484, fig. 308 (1911).

Pterostyrax micranthum Siebold & Zuccarini in *Abh. Akad. Münch.* IV. 3, 132 (*Fl. Jap. Fam. Nat.* II. 8) (1846). — Miers, *Contrib. Bot.* I. 196 (1851–61).

Halesia hispida Masters in *Gard. Chron.* II. 176, fig. 34 (1844). — Nicholson in *Dict. Gard.* II. 110, fig. 166 167 (1886). — Hemsley in *Jour Linn. Soc.* XXVI. 76 (1889). — Gürke in Engler & Prantl, *Nat. Pflanzenfam.* IV.-1, 176, fig. 91 a–z (1891). — Diels in *Bot. Jahrb.* XXIX. 529 (1900). — Shirasawa, *Ill. Ess. For. Jap.* II. t. 65, fig. 1–3 (1900).

Western Hupeh: north and south of Ichang, woodlands, alt. 1000–2300 m., May and October 1907 (No. **497**, in part; tree 10–16 m. tall, 1–2 m. girth, flowers white); Hsing-shan Hsien, woodlands, alt. 1300–2000 m., May 20, 1907 (No. **497**, in part); Fang Hsien, woodlands, alt. 1600–2000 m., May 22, 1907 (No. **497**, in part); Changyang Hsien, woodlands, alt. 1300–2000 m., May 1907 (No. **497**, in part); same locality, May 1900 (Veitch Exped. No. 671); without precise locality, *A. Henry* (Nos. 3774, 5595*c*). Western Szech'uan: Chingchi Hsien, mountain-side, alt. 1300 m., September 16, 1908 (No. **1168**, in part; tree 15 m. tall, 1 m. girth); Wa-shan, woodlands,

alt. 2000–2500 m., July and October 1908 (No. **1168**, in part; tree 10–17 m. tall, girth 1–2 m., flowers white); without precise locality, *A. Henry* (Nos. 5595, 5595*b*, 5595*d*, 8883); Nanch'uan, *A. von Rosthorn* (No. 2075).

A photograph of this tree will be found under No. 348 of Wilson's photographs and also in his *Vegetation of Western China*, No. 422.

OLEACEAE.

SYRINGA L.

Determined by CAMILLO SCHNEIDER.

Sect. VULGARES Schneid.

Syringa pinnatifolia Hemsley in *Gard. Chron.* ser. 3. XXXIX. 68 (1906); in Fedde, *Rep. Nov. Sp.* IV. 365 (1907). — Schneider, *Ill. Handb. Laubholzk.* II. 775 (1911).

Western Szech'uan: Mupin, thickets, alt. 2200–2400 m., October 1910 (No. **4392**; bush 2–3 m. high); thickets, rare, alt. 2250 m., June 1908 (No. **2585**; bush 2–3 m. high, flowers pink); without precise locality, alt. 3000 m., May 1904 (Veitch Exped. No. 4082; bush 2–3 m. high).

Syringa Potaninii Schneider in Fedde *Rep. Nov. Sp.* IX. 80 (1910); *Ill. Handb. Laubholzk.* II. 777 (1911).

Western Szech'uan: Monkong Ting, descent of Hsao-chin Ho, alt. 2100–2700 m., June 1908 (No. **2583**; bush 2–3 m. high; flowers rose-purple); Tachien-lu, May 1904 (Veitch Exped. No. 4080[a]).

The anthers of *S. Potaninii* are yellow as in the nearly allied *S. Dielsiana* Schneider, and not violet or distinctly rosy as indicated by me in the original description. The only hitherto known species with dark violet anthers are *S. pubescens* Turczaninow and *S. Julianae* Schneider. Wilson's specimens seem to differ from the type, of which I have not yet seen mature leaves, only in the larger inflorescence attaining 13 cm. in length.

Sect. VILLOSAE Schneid.

Syringa reflexa Schneider in Fedde, *Rep. Nov. Sp.* IX. 80 (1910); *Ill. Handb. Laubholzk.* II. 779 (1911).

Western Hupeh: Fang Hsien, alt. 1500–2500 m., July 1907 (No. **2582**; bush 2–3 m. high, flowers reddish); same locality, October 1910 (No. **4460**; bush 2 –3 m. high); same locality, July 1901 (Veitch Exped. No. 2078).

A photograph of this shrub will be found under No. 092 of Wilson's photographs; it shows the long pendulous inflorescences which give the species such a very distinct appearance quite different from that of all other Lilacs.

Syringa Sargentiana Schneider, n. sp.

Frutex ad 5-metralis; ramuli juniores glabri v. sub inflorescentiis laxe pubescentes, rubro-brunnei, lenticellis albis conspersi, vetustiores cinerascentes; gemmae ovato-acutae, apice ramorum ad 9 mm. longae et ad 5 mm. latae, glabrae perulis tantum ciliatis. Folia anguste elliptica, basi cuneata, apice acuminata, supra viridia, initio sparse pubescentia, deinde tantum ad costam paullo pilosa, subtus cinerea, toto facie distinctius pubescentia, margine ciliolata, 8–15 cm. longa, 3–5 cm. lata; petioli 1.5–2 cm. longi, vix pilosi. Inflorescentia (teste Wilson) nutans, densiflora, ad 17 cm. longa et 5–6 cm. lata (v. majores?), laxe pubescens; flores rubro-purpurei; pedicelli 1–2 mm. longi, pubescentes; calyces circiter 3 mm. longi, pubescentes, dentibus late triangularibus subacutis; tubus corollae 10–12 mm. longus, apicem versus dilatatus; laciniae corollae ovatae, acutae, 3 mm. longae, ut videtur erectae; antherae faucem corollae non superantes, sed apice attingentes. Fructus laevis, acutus, plus minus curvatus, **ad 1.5 : 0.2 cm. magnus.**

Western Szech'uan: Wa-shan, alt. 1500–2000 m., July 1908 (No. **2581**; bush 3–4 m. high, flowers reddish purple); west of Kuan Hsien, Pan-lan-shan, woodlands, alt. 2000 m., November 1910 (**4304**; bush 3–4 m. high).

This species seems nearly related to *S. reflexa* Schneider, but differs in the long acuminate leaves, the denser and usually shorter, only nodding, not pendulous inflorescence, the pubescent calyx and the not verrucose fruit.

Syringa verrucosa Schneider, n. sp.

Frutex 1.5–4 m. altus; ramuli juveniles sub anthesi ut videtur rubescentes duobus lateribus brevissime pilosi (innovationes non vidi), vetustiores glabri, grisei, angulati, valde verrucosi. Folia valde juvenilia (matura desiderantur), fasciculata, brevissime petiolata; lamina e basi contracta ovata, leviter obovata v. lanceolata, acuta v. subacuta, supra ad nervos breviter pilosa v. glabra, margine ciliolata, subtus paullo pallidiora, basin versus ad costam nervosque distincte barbata v. fere glabra, ad 24 : 9 v. 22 : 17 mm. magna. Inflorescentia valde juvenilis nondum satis evoluta bracteis foliaceis vestita, glabra; flores glaberrimi. Fructus anni praecedentis ad 13 mm. longus, obtusus, distinctissime verrucosus; semina non vidi.

Western Hupeh: Hsing-shan Hsien, summit of Wên-tsao Mt., alt. 2300 m., June 5, 1907 (No. **2579**; bush 2–3 m. high).

This species seems to be nearly allied to *S. yunnanensis* Franchet, of which I have not yet seen ripe fruits, and it is not impossible that it is identical with *S.*

yunnanensis, but in that species the leaves are much paler, rather whitish beneath, and the inflorescence is finely pilose. *S. verrucosa* and *S. yunnanensis* require further study.

Syringa tetanoloba Schneider, n. sp.

Frutex ad 4-metralis; ramuli juniores glaberrimi, fusco-brunnei, lenticellis minimis flavis sparse obtecti; gemmae glabrae, perulis breviter acuminatis. Folia ramorum floriferorum e basi subacuta lanceolata, apicem versus acuta v. subacuminata, circiter 8–9 cm. longa, 3–3.5 cm. lata, supra viridia, glabra, costa media incisa, subtus pallidiora, basin versus ad costam barbata, margine minute ciliato-denticulata scabra; petioli 10–14 mm. longi, tantum supra pilosi. Inflorescentiae juniores (evolutas non vidi) fere glaberrimae, purpurascentes; flores albo violacei?; pedicelli 1–2 mm. longi, plerumque glaberrimi; calyx circiter 2 mm. longus, glaberrimus, margine truncatus v. subdenticulatus; tubus corollae 8–9(–10) mm. longus, laciniae 3–6 mm. longae, angusto-lanceolatae, obtusiusculae, post anthesin explanatae (an reflexae?). Fructus ignotus.

Western Szech'uan: toward Sungpan, thickets, alt. 3600–4000 m., August 1910 (No. **4569**).

Though the specimen is rather meagre, this form can be readily distinguished from *S. Sweginzowii* Koehne & Lingelsheim and from all the other species of this group by the extremely long lobes of the corolla.

Syringa Rehderiana Schneider, n. sp.

Frutex ad 6-metralis ut videtur robustus; ramuli juniores vetustioresque dense cano-tomentelli. Folia ramorum sterilium e basi rotundata late elliptica, apice breviter acuta v. subacuminata, supra intense viridia, laxe puberula, subtus cinerea, distinctius sed haud dense pubescentia, praesertim ad nervos barbata, margine ciliata, 8–10 cm. longa, 3.5–5 cm. lata, ramulorum floriferum ut videtur plus minus lanceolata; petioli breves, 6–10 mm. longi, hirsuti. Inflorescentia magna, ad 17 cm. longa et 14 cm. lata, cano-tomentella v. breve hirsuta; flores albi; pedicelli subhirsuti, calycibus tantum infra mediam pilosis margine truncatis vix denticulatis 1–1.5 mm. longis breviores; tubus corollae circiter 10 mm. longus, apicem versus vix dilatatus; laciniae corollae post anthesin explanatae et reflexae, circa 2 mm. longae, ovato-obtusae; antherae superiori parte tubi insertae, sed faucem corollae haud attingentes. Fructus ignotus.

Western Szech'uan: northeast of Tachien-lu, thickets, alt. 3600–4000 m., July 1908 (No. **1273**[a]; in Herb. Arnold Arboretum).

This seems to be an extremely beautiful shrub, most nearly related to *S. tomentella* Franchet, but the dense pubescence of the branches and the very short petioled broad elliptic leaves distinguish *S. Rehderiana* at once from the allied species.

Syringa tomentella Bureau & Franchet in *Jour. de Bot.* V. 103 (April 1891). — Schneider in Fedde, *Rep. Nov. Sp.* II. 81 (1910); *Ill. Handb. Laubholzk.* II. 782, fig. 489 a, 490 i–k (1911).

Syringa velutina Bureau & Franchet in *Rev. Hort.* 1891, 308, 333 (non Komarow) (July 1891).

Syringa Emodi var. *pilosissima* Schneider in *Wien. Ill. Garten-Zeit.* XXVIII. 107 (1903).

Western Szech'uan: Pan-lan-shan, west of Kuan Hsien, thickets, alt. 3700 m., June 1908 (No. **2584**; bush 1.5–3 m., high, flowers rose-pink); Tachien-lu, thickets, alt. 3000 m., July 1908 (No. **1273**[b]; bush 4–5 m. high, flowers white or pink); same locality, October 1910 (No. **4408**; bush 3–5 m. high).

Wilson's specimens differ from typical *S. tomentella* Bureau & Franchet in their glabrous calyx and less hairy inflorescence, and approach in this respect *S. Wilsonii* Schneider, but are easily distinguished from that species by the pubescent lower surface of the leaves.

Syringa Wilsonii Schneider, n. sp.

Frutex 2–7-metralis; ramuli glabri, lenticellis albidis conspersi; gemmae ovato-acutae, glabrae, terminales 8 mm. longae et 4.5 mm. latae. Folia membranacea, elliptico–lanceolata v. elliptico-ovata, acuminata, basi cuneata, in petiolum decurrentia, rarius fere rotundata, 6–12 longa, 2.5–6 cm. lata, supra laete viridia glabra, subtus tantum versus basin secus costam nervosque laxe villosa; petioli circiter 1 cm. longi, glabri v. fere glabri. Inflorescentia terminalis ad 15 cm. longa et ad 10 cm. lata, glabra v. fere glabra pedicellis tantum breviter sparse pilosis; flores albi v. lilacini; calyx glaber v. basi tantum sparse pilosulus, 1.5 mm. longus, fere truncatus v. 4–dentatus dentibus brevibus obtusis; corollae tubus 8–10 mm. longus, apicem versus breviter dilatatus, laciniae oblongae, 4–5 mm. longae, demum patentes et reflexae; antherae faucem haud attingentes, pallidae; stylus 4 mm. longus. Fructus 16 mm. longus, acutus, apicem versus distincte verrucosus.

Western Szech'uan: Tachien-lu, thickets, alt. 2500–3300 m., June and October 1908 (No. **1273**).

Closely allied to *S. tomentella* Franchet which differs chiefly in the pubescent inflorescence, the pubescent lower surface of the leaves and in the nearly smooth fruit 13–14 mm. long.

Syringa Komarowii Schneider in Fedde *Rep. Nov. Sp.* IX. 82 (1910); *Ill. Handb. Laubholzk.* II. 783 (1911).

Western Szech'uan: Mupin, thickets, alt. 1800–2600 m., July 1908 (No. **1217**; bush 2–5 m. high; flowers deep rose-pink); same locality, alt. 2600 m., October 1910 (No. **4407**); Nin-tou-shan, alt. 2200–2600 m., June 1908 (No. **2580**, bush 3–4 m. high, flowers reddish-purple).

The fruit, which has not yet been described, is 12–14 mm. long, obtuse or sometimes mucronulate and nearly smooth.

The following descriptions and notes are based on material not collected during the Arnold Arboretum Expedition.

Syringa microphylla Diels, var. **glabriuscula** Schneider, n. var.

A typo calycibus glabriusculis v. glabris fere edentatis differt.

Northern Hupeh: Mt. Miao-uan-san, 1898, *Hugh Scallan* (in part; part of the specimens consists of typical *S. microphylla*).

Syringa Meyeri Schneider, n. sp.

Frutex habitu ut videtur *S. pubescentis*; ramuli juniores quadrangulati vetustioresque minute pubescentes; folia ovato-elliptica v. paullo obovalia utrinque acuta v. apice obtusiuscula, supra viridia, glaberrima, subtus vix pallidiora, versus basin ad nervos pubescentia, margine ciliata, 2–5 cm. longa et 1.8–3 cm. lata, nervis lateralibus utrinque 2 apicem versus currentibus; petioli 5 ad 11 mm. longi, ramulorum modo pilosi. Inflorescentia eae *S. pubescentis* simillima, interdum basi foliis non satis evolutis instructa, ramulis minute pubescentibus; flores violacei, longe tubulosi; pedicelli vix 1 mm. longi, puberuli; calyx violaceus, circiter 1.5 mm. longus, glaber, brevidentatus; tubus corollae 15–16 mm. longus, apicem versus vix dilatatus; laciniae corollae ad 4 mm. longae, acutae, explanatae; antherae fere 6 mm. infra faucem corollae tubo insertae, ut videtur violaceae. Fructus ignotus.

Northern China: introduced by *F. N. Meyer* and distributed by the U. S. Dept. of Agriculture under No. 23032; cultivated at the Arnold Arboretum; June 1910 (Herb. Arnold Arboretum).

This species is very closely allied to *S. pubescens* Turczaninow, but differs in the longer tube of the corolla, the minutely but distinctly puberulous branches and in the different venation of the leaves. I am in doubt whether the anthers are violet as in *S. pubescens* or rose as in *S. Potaninii*.

Syringa Sweginzowii Koehne & Lingelsheim in Fedde, *Rep. Nov. Sp.* VIII. 9 (1910). — Koehne in *Mitt. Deutsch. Dendr. Ges.* XIX. 112, fig. 8a (1910). — Schneider, *Ill. Handb. Laubholzk.* II. 780, fig. 487a–c, 490 a–d (1911).

Western China: without precise locality, ravines, alt. 5400 m., June 1904, *E. H. Wilson* (Veitch Exped. No. 4080).

From typical *S. Sweginzowii*, of which the native country is still unknown, Wilson's specimen differs only in the leaves being quite glabrous beneath, in the distinctly but minutely puberulous inflorescence and branchlets and in the nearly truncate calyx, otherwise I can find no difference.

FORSYTHIA Vahl.

Determined by ALFRED REHDER.

Forsythia suspensa Vahl, *Enum.* I. 39 (1804). — Siebold & Zuccarini, *Fl. Jap.* I. 12, t. 3 (1835). — Hemsley in *Jour. Linn. Soc.* XXII. 82 (1889).

Syringa suspensa Thunberg, *Fl. Jap.* 19 (1784).
Lilac perpensa Lamarck, *Encycl. Meth.* III. 513 (1788).
Forsythia Fortuni Lindley in *Gard. Chron.* 1864, 12.

Western Hupeh: Hsing-shan Hsien, thickets, moors and cliffs, alt. 300–1000 m., May and September 1907 (No. **637**, in part); near Ichang, cliffs, alt. 300–500 m., June 11, 1907 (No. **637**, in part); Chang-yang Hsien, thickets, alt. 600–1200 m., May 1907 (No. **637**, in part).

Wilson's specimens differ somewhat from the cultivated Chinese form (*F. suspensa*, var. *Fortunei* Rehder) in the intense purple color of young branchlets and the purplish hue of the young unfolding foliage.

Forsythia suspensa, f. **pubescens** Rehder, n. forma.

A *F. suspensa*, var. *Fortunei* recedit foliis utrinque et petiolis molliter pubescentibus. Ramuli glabri, hornotini purpurei; folia elliptico-ovata, saepissime trifoliolata.

Raised with the typical glabrous form at the Arnold Arboretum from seed collected by Wilson and distributed under No. 637.[1]

[1] Another Chinese form which seems to merit a distinctive name is the following:

Forsythia suspensa, var. **latifolia** Rehder, n. var.
Shantung: Po-shan, very rare, September 1907, *F. N. Meyer* (No. 263).
A typo recedit foliis late ovatis omnibus simplicibus (semper?) acutis, basi rotundatis, grossius serratis, inferioribus saepe apice rotundatis basi fere subcordatis, 3–6 cm. longis et 2.5–4.5 cm. latis, capsulis latioribus, 15–18 mm. longis et 8–10 mm. latis, brevius acuminatis.
This variety resembles in its always, or at least mostly, undivided leaves *F. suspensa*, var. *Sieboldii* Zabel, but it seems to be a more robust, upright growing shrub.

BIGNONIACEAE.

Determined by ALFRED REHDER.

CAMPSIS Lour.

Campsis chinensis Voss, *Vilmorin's Blumengärt.* ed. 3, 801 (1896).—Schneider, *Ill. Handb. Laubholzk.* II. 623, fig. 402 f. (1911).

Bignonia chinensis Lamarck, *Encycl. Méth.* I. 423 (1783).
Bignonia grandiflora Thunberg, *Fl. Jap.* 253 (1784).
Campsis adrepens Loureiro, *Fl. Cochin.* II. 377 (1790).
Tecoma grandiflora Loiseleur-Deslongchamps, *Herb. Amat.* V. t. 286 (1821). — Planchon in *Fl. des Serres* XI. 103, t. 1124, 1125 (1856).
Tecoma chinensis K. Koch, *Dendr.* II. 307 (1872).
Campsis grandiflora Schumann in Engler & Prantl, *Natürl. Pflanzenfam.* IV., 3b. 230 (1894).

Kiangsi: plain of Kiukiang, alt. 100 m., August 2, 1907 (No. 1563; climber, 6 m. or more high, on trees, flowers terracotta color). Hupeh: without locality, *A. Henry* (No. 1535).

AMPHICOME Royle.

Amphicome arguta Lindley in *Bot. Reg.* XXIV. t. 19 (1838). — Bureau *Monogr. Bignon.* Atlas, 26, t. 24 (1864). — Clarke in Hooker f., *Fl. Brit. Ind.* IV. 385 (1885). — Franchet in *Nouv. Arch. Mus. Paris*, sér. 2, X. 63 (*Pl. David.* II. 101) (1887). — Diels in *Bot. Jahrb.* XXIX. 577 (1901).

Incarvillea (*Amphicome*) *arguta* Royle, *Ill. Bot. Himal.* 296 (1839).
Incarvillea diffusa Royle, *Ill. Bot. Himal.* t. 72, fig. 1 (1839).

Western Szech'uan: Min valley, dry arid places, alt. 1000–1700 m., May 24, 1908 (No. 2042; sub-shrub, 60–90 cm., flowers rose-pink).

This plant is only suffruticose and can hardly be called a woody plant. The calyx in Wilson's specimen has rather short teeth and rounded sinuses; the corolla is large, measuring 3.5–4 cm. in length.

CATALPA Scop.

Catalpa ovata G. Don, *Gen. Syst.* IV. 230 (1837). — Lavallée, *Icon. Arb. Segrez.* 33, t. 10 (1880).

Bignonia Catalpa Thunberg, *Fl. Jap.* 251 (non Linnaeus) (1784).
Catalpa bignonioides, β? *Kaempferi* De Candolle, *Prodr.* IX. 226 (1845).
Catalpa Kaempferi Siebold & Zuccarini, in *Abh. Akad. Münch.* IV. 3, 142 (*Fl. Jap. Fam. Nat.* II. 18) (1846). — Lemaire in *Ill. Hort.* IX. t. 319 (1862). — Hooker f. in *Bot. Mag.* CVIII. t. 6611 (1882).
Catalpa Henryi Dode in *Bull. Soc. Dendr. France*, 1907, 199, fig. D, E.

Hupeh: north and south of Ichang, common, alt. 600–1000 m., October 1907 (No. **2198**, in part); Chang-lo-Hsien, in woods, common, alt. 800 m., July 1907 (No. **2198**, in part); Hsing-shan Hsien, common, June 1907 (No. **2198**, in part; tree 6–14 m., 1–1.60 m. circumference, flowers white); Paokang Hsien, June 1901 (Veitch Exped. No. 1631; tree 7–30 m.). Shantung: Lau-shan, August 1907, *F. N. Meyer* (No. 296).

The native habitat of *C. ovata* is apparently central China, where Wilson found it common in the margins of woods and more especially in the open country of Hupeh. Until recently it was generally considered a native of Japan, where it was first discovered by Kaempfer and whence it was introduced into Europe in 1849, but we know now that it was brought about the beginning of the Christian era by priests of Buddha from China to Japan and there much planted around temples (*cf.* Sargent, *Silva N. Am.* VI. 84). I am not able to find any reliable character to distinguish *C. Henryi* Dode from the cultivated form of *C. ovata*.

Catalpa Duclouxii Dode in *Bull Soc. Dendr. France*, 1907, 201, fig.

Catalpa sutchuenensis Dode l. c. 204, fig.

Western Szech'uan: Ching-chi Hsien, alt. 1000 m., May 1907 (No. **640**, in part; tree 12–16 m., flowers very light purple with yellow throat); without locality, alt. 900 m., May 1904 (Veitch Exped. No. 4289; tree 8–13 m., flowers white suffused and spotted with pink). Eastern Szech'uan: South Wushan, June 1900 (Veitch Exped. No. 976; tree 7–16 m.). Western Hupeh: Fang Hsien, open country, alt. 1200–1400 m., May 24 and October 1907 (No. **640** in part; tree 13–16 m., circumference 0.60–1.60 m., flowers rose-pink with orange markings in throat); without locality, *A. Henry*.

Catalpa Duclouxii, originally based on specimens from Yunnan, and *C. sutchuenensis* are considered by Dode as two distinct species, the first characterized by a corymbose inflorescence and grouped therefore with *C. ovata* D. Don, and the second by a racemose inflorescence and grouped with *C. Bungei* C. A. Meyer. There are, however, no other differences between these two supposed species; the leaves and also the flowers are exactly alike and the infloresences differ only in this, that in *C. sutchuenensis* the branches of the 2–6-flowered inflorescences are all simple, while in *C. Duclouxii* the lower branches of the 6–16-flowered inflorescences bear 2 or 3 flowers, but one kind of inflorescence merges gradually into the other. No. 640 from Ching-chi Hsien and No. 4289 have the many-flowered inflorescence of typical *C. Duclouxii*, while No. 640 from Fang Hsien have all the lateral axes of the inflorescence simple; the other numbers are more or less intermediate. It is possible

even to go farther and consider *C. Duclouxii* only a glabrous variety of *C. Fargesii* Bureau, which agrees with it in almost every character except in the pubescence and perhaps in the somewhat stouter capsules.

A photograph of this tree will be found under No. 0192 of Wilson's photographs.

Catalpa Fargesii Bureau in *Nouv. Arch. Mus. Paris*, sér. 2, VII. 195, t. 3 (1894).

Western Hupeh: Fang Hsien, open country, alt. 1000–1300 m., May 25, June and November 1907 (No. **636**; tree 6–22 m., circumference 1–1.60 m., flowers rosy-purple); Hsing-shan Hsien, rare, alt. 1300 m., June 1907 (No. **748**; tree 7–13 m., circumference .60–1.60 m., flowers bright rosy-purple); same locality, June 7, 1910 (No. **4556**; tree 17–20 m., flowers rosy-pink). Szech'uan: without locality, *A. Henry* (No. 5856[a]).

Catalpa Fargesii shows considerable variation in the density of its pubescence; while No. 748 has the lower surface of the leaves densely yellowish tomentose, No. 636 is only pubescent and No. 5856[a] is only slightly pubescent on the under side of the leaves and forms a transition to the preceding species. A closely related species or possibly only a variety is *C. vestita* Diels, which differs in its smaller flowers and smaller leaves whitish tomentose beneath. Seeds of this species collected by Wilson have been distributed erroneously under the name of *C. vestita*, while those of *C. Duclouxii* have been sent out as *C. Fargesii*.

CAPRIFOLIACEAE.[1]

Determined by Alfred Rehder.

SAMBUCUS L.[1]

Sambucus Wightiana Wallich apud Wight & Arnott, *Prodr. Fl. Ind.* I. 388 (1834). — Walpers, *Rep.* II. 453 (1843). — Hutchinson in *Kew Bull. Misc. Inform.* XXII. 192 (1909). — Schwerin in *Mitt. Deutsch. Dendr. Ges.* XVIII. 27 (1909).

Sambucus Wightiana Wallich, Cat. No. 6308 (nomen nudum)(1828).
Sambucus Ebulus Hooker f. & Thomson in *Jour. Linn. Soc.* II. 179 (not Linnaeus) (1858). — Clarke in Hooker f., *Fl. Brit. Ind.* III. 2 (1880). — Brandis, *Indian Trees*, 364 (1906).
Sambucus Gautschii Wettstein in *Oestr. Bot. Zeitschr.* XL. 230 (1890).

Western Hupeh: Fang Hsien, moist places, abundant, alt. 1800–2700 m., June 16, 1910 (No. **4490**; about 1 m. tall, flowers white). Western Himalayas: Kishtwar, alt. 2000–3000 m., *T. Thomson* (as *S. Ebulus*).

Wilson's specimen agrees exactly with Thomson's specimen from Kishtwar; the upper leaflets are adnate at the base and decurrent in both specimens. From *S. adnata* Wallich it is easily distinguished by the long-peduncled, leafless and glabrous inflorescence and by the coarser more spreading teeth of the leaflets.

Sambucus Schweriniana Rehder, n. sp.

Suffrutex ut videtur, 1–1.5 m. altus ramis herbaceis, glabris, striatis. Folia (ea ramuli fructiferi tantum vidi) impari-pinnata, glabra, laete luteo-viridia, concoloria, 10–14 cm. longa; foliola 5–7, oblongo-lanceolata, rarius elliptico-oblonga v. oblongo-ovata, acuminata, basi valde inaequalia, inferiora petiolata petiolulis ad 5 mm. longis, superiora rhachi adnata et decurrentia, serrata dentibus erecto-patentibus apice glandula conica munitis, nervis utrinsecus 7–11 utrinque leviter elevatis curvatis; petioli ut rhachis glabri, 1.5–2.5 cm. longi; stipulae subulatae, circiter 5 mm. longae. Corymbus fructifer umbelliformis, fere planus, longe pedunculatus pedunculo 9 cm. longo nudo apicem versus puberulo, radiis 5 valde inaequalibus, puberulis v. sursum ut

[1] See also p. 106.

pedicelli breviter hispidulis; pedicelli 1–3 mm. longi. Fructus salmoneo-ruber, subglobosus, calycis dentibus erectis persistentibus coronatus, circiter 3 mm. diam., trispermus; semina late ovoidea, leviter compressa, 1.7 mm. longa et 1.5 mm. lata, laevia, luteo-albida.

Western Szech'uan: Sungpan, alt. 2300–2700 m., August 1910 (No. 4020).

This species is most closely related to *S. Wightiana* Wallich, which is easily distinguished by the ovoid fruits, the trigonous oblong-ovoid, rugose seeds, scarcely 1 mm. in diameter, and by the larger leaflets. In the smooth roundish light-colored seeds *S. Schweriniana* differs from all the other allied species.

The two preceding Sambucus belong to a group of apparently much confused species. As the conclusions I arrived at after a study of copious material differ in several respects from the treatment of these species by other writers, I add here a complete account of the three other species of this group with remarks on their relationship and affinities.

Sambucus javanica Reinwardt apud Blume, *Bijdr. Fl. Ned. Ind.* 657 (1825). — De Candolle, *Prodr.* IV. 322 (1830). — G. Don, *Gen. Syst.* III. 437 (1834). — Hasskarl in *Flora*, XXVIII. 1, 243 (1845).— Miquel, *Fl. Ind. Bat.* II. 124 (1856). — Hooker f. & Thomson in *Jour. Linn. Soc.* II. 180 (pro parte) (1858). — Clarke in Hooker f., *Fl. Brit. Ind.* III. 2 (pro parte) (1882). — Hemsley in *Jour. Linn. Soc.* XXIII. 348 (1888). — Schwerin in *Mitt. Deutsch Dendr. Ges.* XVIII. 41 (pro parte) (1909).

Sambucus canadensis Thunberg, *Fl. Jap.* 126 (non Linnaeus) (1784).

Sambucus chinensis Lindley in *Trans. Hort. Soc. Lond.* VI. 297 (1826). — De Candolle, *Prodr.* IV. 322 (1830). — Hance in *Ann. Sci. Nat.* sér. 5, V. 217 (1866); in *Jour. Bot.* VII. 295 (1869); XII. 260 (1874).

Sambucus Thunbergii G. Don, *Gen. Syst.* III. 438 (1834).

Sambucus Thunbergiana Blume apud Miquel in *Ann. Mus. Lugd.-Bot.* II. 265 (1865–66); *Prol. Fl. Jap.* 153 (1866–67). — Kurz, *Forest Fl. Brit. Burma*, II. 3 (1877).

Sambucus racemosa Tanaka, *Useful Pl. Jap.* 115, fig. 433 (non Linnaeus) (1895).

Western Hupeh: Patung Hsien, thickets, alt. 1000–1300 m., August 1907 (No. 2520; sub-shrub 1.20–2 m. high, flowers white, fruits red); without precise locality, June 1900 (Veitch Exped. No. 1261[a]); Ichang, *A. Henry* (No. 1694); Nan-t'o and mountains to northward, *A. Henry* (No. 2007); Patung district, *A. Henry* (Nos. 2537, 2388). Kiangsi: Kuling, abundant, alt. 1000 m., July 29, 1907 (No. 1730; sub-shrub, 1.20–2 m. high; flowers white). Chekiang: Ningpo, 1908, *D. Macgregor*. Kwangtung; Canton, 1869, *H. F. Hance*. Yunnan: Mi-le district, *A. Henry* (No. 9924); Szemao, southern mts., alt. 1500 m., *A. Henry* (Nos. 12809, 12340). Formosa: Kelung and Hainan, *C. Ford*; without locality, *R. Oldham* (No. 202); Tamsui,

A. Henry (No. 1747); South Cape, *A. Henry* (Nos. 214, 921); Ban kinsing, *A. Henry* (No. 553). Assam: Kashia Mts., alt. 1500 m., *J. D. Hooker & T. Thomson.* Also in Japan (*Blume, Oldham, Maximowicz, Faurie, Watanabe*), Liu-kiu Islands (*C Wright*), Philippine Islands (*Elmer*), Java (*Horsfield*).

This is a very widely distributed species ranging from the Malayan Archipelago to central Japan and western China and has also been found in eastern Africa. It is characterized by the slender pedicelled flowers, the presence of conspicuous abortive flowers and the very wide and loose inflorescence with the longer rays subthyrsoid; like the two preceding species it has red fruits and shows the tendency to have the upper leaflets more or less adnate to the rhachis and sometimes decurrent. The Chinese form is usually quite glabrous and certainly has red fruits, as the specimens with ripe fruits show and as it is stated by Hance; the form of the Philippine Islands and of Java has usually a puberulous inflorescence and the leaves generally more or less pubescent on the veins; its fruit is described by Miquel and Hasskarl as greenish, by Junghuhn as yellow. In all other characters, however, the two forms agree perfectly and it does not seem possible to separate them specifically.

The two following species, which are not represented in the Wilson collection, occur in the Himalayas, and one of them also in China.

Sambucus adnata Wallich apud De Candolle, *Prodr.* IV. 322 (1830). — Hooker f. & Thomson in *Jour. Linn. Soc.* II. 180 (1858). — Clarke in Hooker f., *Fl. Brit. Ind.* III. 3 (1882). — Brandis, *Indian Trees,* 364 (1906). — Hutchinson in *Kew Bull. Misc. Inform.* XXII. 193 (1909). — Schwerin in *Mitt. Deutsch. Dendr. Ges.* XVIII. 41 (1909).

Western Szech'uan: near Tachien-lu, alt. 3000–4000 m., *A. E. Pratt* (No. 122). Yunnan: Mengtze, north mts. forests, alt. 2500 m., *A. Henry* (No. 10772). Tibet: Chumbi, June 27, 1878, *Dungboo* (Herb. Hort. Bot. Calcutt.). Sikkim: alt. 2000–3500 m., *J. D. Hooker.*

This species seems most closely related to *S. Wightiana* Wallich, from which it differs chiefly in the pubescent inflorescence with the rays subtended by leaves or bracts. From *S. javanica* it is easily distinguished by the absence of the aborted flowers and the smaller and denser pubescent inflorescence. *Sambucus adnata* has also been reported from eastern Africa, but its occurrence there is not at all probable; very likely specimens of *S. javanica* with partly adnate leaflets have been erroneously determined as *S. adnata.*

Sambucus Hookeri Rehder, n. sp.

Sambucus javanica Hooker f. & Thomson in *Jour. Linn. Soc.* II. 180 (pro parte, non Reinwardt) (1858). — Clarke in Hooker f., *Fl. Brit. Ind.* III. 2 (pro parte) (1882. — Brandis, *Indian Trees,* 364 (pro parte) (1906). — Hutchinson in *Kew Bull. Misc. Inform.* XXII. 193 (pro parte) (1909). — Schwerin in *Mitt. Deutsch. Dendr. Ges.* XVIII. 41 (pro parte) (1909).

A specie affini *S. javanica* Reinwardt praecipue recedit floribus sessilibus v. breviter pedicellatis, floribus sterilibus minoribus, inflorescentia pubescente, foliolis majoribus latioribusque ad 16 cm. longis et ad 6.5 cm. latis, grossius serratis dentibus patentibus fere triangularibus, fructu nigro (teste Hooker).

Sikkim: alt. 1000–2000 m., *J. D. Hooker* (type); without locality, October 10, 1868, *S. Kurz;* September 16, 1876, *G. King.* Assam: Santung, May 1895 (Flora of Assam, No. 11660); Sadija, June 1898, Prain's collector.

This species is closely allied to *S. javanica* Reinwardt, but it differs considerably in its sessile or nearly sessile flowers and in the larger and broader leaflets with

spreading, coarser and shorter teeth; the very wide and loose inflorescence is densely and finely pubescent and the aborted flowers are smaller and fewer; ripe fruit I have not seen, but according to Hooker, Hutchinson and others the fruit is black; even if the color of the fruit should be incorrectly stated, the other characters are sufficient to separate it from *S. javanica*.

All the species enumerated above form a group of closely related species characterized by the valvate aestivation of the corolla, the suffruticose stems and the tendency of the upper leaflets to be adnate to the rachis. On account of the aestivation of the corolla and of the suffruticose habit they are best referred to the section *Ebulus*, though they differ from the type of this section in their spreading stamens with yellow anthers, smaller flowers and smaller fruits red or yellowish, except in *S. Hookeri*, which is described as black-fruited. On the presence of abortive flowers in one of the species Miquel based his section *Scyphidanthe*, which was erroneously placed by Fritsch and by Schwerin as a subsection in the section *Eusambucus* in which the aestivation of the corolla is imbricate. I agree with Hance that the presence of abortive flowers is hardly a sufficient character upon which to base a section, and *Scyphidanthe* therefore should be merged into the section *Ebulus*. Of the six species of this section *S. Ebulus* L. stands quite by itself on account of its larger flowers, upright stamens with violet anthers and of its rather large purplish-black fruits and always distinct leaflets. A second group is formed by *S. Wightiana*, *S. Schweriniana* and *S. adnata*, similar in habit to *S. Ebulus*, but differing in the smaller flowers, spreading stamens with yellow anthers, red fruits (finally black in *S. Wightiana*) and usually adnate upper leaflets. The third group comprises *S. javanica* and *S. Hookeri* and is characterized by the presence of abortive flowers and by the very wide and loose inflorescence with the rays partly subthyrsoid, while in its other characters this group is nearest to the second group.

Sambucus Sieboldiana Blume. See p. 106.

The Nos. 4020 and 4490 referred (p. 106) erroneously to *S. Sieboldiana* represent *S. Wightiana* Wallich and *S. Schweriniana* Rehder.

VIBURNUM L.[1]

Viburnum brachybotryum Hemsley. See p. 108.

Yunnan: Mengtze, alt. 2000 m., *A. Henry* (Nos. 10065, 10065*a*); Szemao, southeastern forests, alt. 1700 m., A. Henry (Nos. 12790, 12790*a*).

Henry's specimens present apparently the normal development of the inflorescence, which is borne on very short spurs lateral on two year old branches, without any leaves at the base, and only with caducous scales. The very loose and lax apparently pendulous inflorescence is, including the 1.5–7 cm. long peduncle, 10–22 cm. long and 10–15 cm. wide; the name *V. brachybotryum* therefore seems very inappropriate for this species, which has one of the largest inflorescences in the whole genus. It is highly interesting that Henry's specimens show conclusively that *V. brachybotryum* has indeed dioecious flowers; Nos. 10065 and 12790 represent the pistillate and Nos. 10065*a* and 12790*a* the staminate plant. In the pistillate flowers the corolla-lobes are spreading as they are in the staminate flower, and also in the shape of the inflorescence the two sexes are alike except that the staminate inflorescence is generally somewhat larger and laxer.

[1] See also p. 106.

Viburnum rhytidophyllum Hemsley. See p. 110.

Callicarpa vastifolia Diels in *Bot. Jahrb.* XXIX. 547 (1900).

Callicarpa vastifolia, based upon branches without flowers or fruits, is nothing but *V. rhytidophyllum*. The foliage agrees exactly and even the bud of the inflorescence for the following year can be discerned between the terminal pair of leaves, while in *Callicarpa* the corymbs are axillary and their buds are not formed the year before.

Viburnum brevipes Rehder. See p. 113.

Descriptioni l. c. adde: Folia . . . oblongo-ovata v. rhombico-elliptica. . . . Corymbus 3.5–5 cm. diam., pedunculo 1–1.5 cm. longo fasciculato-piloso insidens, radiis plerumque 5 fasciculato-pilosis, bracteis caducis 3–4 mm. longis extus sparse pilosis; flores breviter pedicellati, in radiis plerumque tertii ordinis; calyx dense fasciculato-pilosus, tubo oblongo-ovoideo circiter 1 mm. longo, dentibus ovatis quadrantem tubi aequantibus; corolla rotata, 4 mm. diam., alba, extus pilosa, lobis rotundatis minute glanduloso-ciliatis tubo paullo longioribus; stamina corollam aequantia, antheris ovalibus, in sicco fusco-flavis; stylus crassus, calycis dentes superans, stigmate leviter trilobato.

Western Hupeh: Changyang Hsien, thickets, alt. 1700 m., June 1907 (No. 447[a]).

The flowering specimens of *V. brevipes* had been misplaced and were found after the description drawn up from the fruiting specimens had been published. The leaves of the flowering specimen differ slightly in being generally rhombic-elliptic and only 4–5 cm. long, also the glands on the lower surface of the leaves are not as copious. Wilson's No. 944, referred provisionally to this species, does not belong here, but is very near *V. dilatatum* Thunberg and probably referable to that species.

I take the opportunity to add here the descriptions of two new Chinese species and a new variety.

Viburnum calvum Rehder, n. sp.

Frutex 2-metralis, glaberrimus; ramuli hornotini ut videtur purpurascentes, vetustiores flavescentes; gemmae ut videtur perulis 2 exterioribus. Folia coriacea persistentia, ovalia v. ovata v. oblongo-ovata, apice obtusa mucronata, basi late cuneata, margine integra v. interdum denticulis paucis instructa, 3–6 cm. longa et 1.5–2.8 cm. lata, supra atro-viridia, subnitentia, subtus pallidiora, nervis utrinsecus 6–8 anastomosantibus ut costa supra impressis subtus elevatis, venulorum reticulo supra impresso subtus obsoleto; petioli 6–12 mm. longi, lutescentes ut costa subtus. Inflorescentia umbellata, circiter 3 cm. diam., glabra, pedunculo circiter 1.5 cm. longo insidens, 5-radiata; flores in radiis primi v. secundi ordinis, brevissime pedicellati; calyx 1.5 mm. altus, 2 mm. diam., tubo turbinato, dentibus late triangularibus latioribus quam longis; corolla rotata 5 mm. diam., alba, lobis ovalibus tubo paullo longioribus; stamina lobis corollae breviora, antheris ovalibus; stylus brevis, crassus, globoso-pyramidalis. Fructus desideratur.

Yunnan: Mengtze, northern mountains, forests, alt. 2700 m., *A. Henry* (No. 10564 in Herb. Arnold Arboretum).

Viburnum calvum seems most nearly related to *V. punctatum* Don, which is easily distinguished by the larger acuminate leaves lepidote below and by the sessile or subsessile much larger and lepidote inflorescence.

Viburnum laterale Rehder, n. sp.

Frutex? ut videtur robustus; ramuli hornotini glabri, pallide brunnei, annotini pallide griseo-brunnei, sparse lenticellati; gemmae stellato-tomentosae. Folia membranacea, ovata v. elliptica v. ovato-oblonga, superiora anguste elliptico-oblonga, acuminata basi rotundata v. late cuneata, 7–12 cm. longa et 4–7 cm. lata, dentato-serrata, dentibus breviter acuminatis patentibus, utrinque glabra, supra laete viridia, subnitentia, subtus pallidiora, nervis utrinsecus 6–9 leviter curvatis in dentes exeuntibus; petioli 1–2 cm. longi, glabri, estipulati. Corymbus umbelliformis 4–5 cm. diam., in apice ramulorum brevium lateralium bifoliatorum pedunculo 5–6 cm. longo gracili glabro insidens, bracteis bracteolisque parvis lineari-lanceolatis, radiis plerumque 5 glabris; flores in radiis tertii ordinis, breviter pedicellati v. fere sessiles; ovarium oblongo-ovoideum, glaber, circiter 2 mm. longum; calycis dentes ovati, acuti v. obtusi, circiter 0.7 mm. longi; corolla deest; stylus crassus conicus, sepala paullo superans. Fructus desideratur.

Fokien: without precise locality, April to June 1905, *S. T. Dunn* (Herb. Hongkong Bot. Gard. No. 2771, in Herb. Arnold Arboretum).

Though neither the corolla nor the ripe fruit of this plant are known, there can be no doubt that it is a distinct and well marked species. There are only few species with lateral inflorescences and from all of them *V. laterale* is easily distinguished by its glabrousness; it seems nearest to *V. amplifolium* Rehder, which differs besides in its pubescence, in the larger corymbs and in the longer and cylindric style. *Viburnum Colebrookianum* Wallich, which is sometimes nearly glabrous, is easily distinguished by its oblong and longer leaves and by the corymbs being borne on leafless branchlets.

Viburnum erosum Thunberg, *Fl. Jap.* 124 (1704) — Maximowicz in *Bull. Acad. Sci. St. Pétersbourg* XXVI. 491; in *Mél. Biol.* X. 669 (1880). — Sargent in *Garden & Forest*, IX. 85, fig. 9 (1896). — Rehder in Sargent, *Trees & Shrubs*, II. 116 (1908).

A variable and apparently rather common species in Japan and Korea.

Viburnum erosum, var. **Taquetii** Rehder, n. var.

Viburnum Taquetii Léveillé in Fedde, *Rep. Nov. Sp.* IX. 443 (1911).

A typo praecipue differt foliis angustioribus oblongo-lanceolatis grosse dentatis v. inciso-dentatis saepe trilobatis.

Korea: Quelpaert in silvis Yungsil, alt. 1000 m., August 12, 1910, *E. J. Taquet* (No. 4281).

A very peculiar and distinct looking plant, but hardly specifically separable from *V. erosum*, of which it is apparently only an abnormal form.

LEYCESTERIA Wall.

Leycesteria formosa Wallich in Roxburgh, *Fl. Ind.* II. 182 (1824); *Pl. As. Rar.* II. 21, t. 120 (1831). — Hooker in *Bot. Mag.* LXV. t. 3699 (1839). — Lindley in *Bot. Reg.* XXV. t. 2 (1839). — Grönland in *Rev. Hort.* 1857, 109, fig. 50. — Vos in *Nederl. Flora en Pom.* III. t. 36 (1876). — Schneider, *Ill. Handb. Laubholzk.* II. 752, fig. 471 f–r (1911).

Yunnan: Mengtze, north mts., alt. 2000 m., *A. Henry* (No. 9692 B; shrub 2 m., white flowers); south of Red River from Manmei, alt. 2000 m., *A. Henry* (No. 9692; shrub 2 m., white flowers).

Leycesteria formosa, var. stenosepala Rehder, n. var.

A typo recedit sepalis anguste lineari-lanceolatis, 4–7 mm. longis et 0.2–0.8 mm. latis, insuper foliis basi rotundatis v. late cuneatis subtus vix glaucescentibus, bracteis inflorescentiae minoribus viridescentibus rarius coloratis longe ciliatis supra adpresse pilosis.

Western Szech'uan: descent of Hsao-chin Ho, north of Monkong Ting, alt. 2300–3000 m., June 29, 1908 (No. **3476**; bush 40–120 cm., flowers white, pale purple without); Wa-shan, side of streams, alt. 2000 m., July 1908 (No. **3477**; bush 120 cm., flowers white, fruits dark red); watercourses around Tachien-lu, alt. 2300–2700 m., June 1908 (No. **3478**; bush 120–150 cm., flowers white); west and near Wên-ch'uan Hsien, alt. 2000–2500 m., July 1908 (No. **3479**; bush 120–180 cm., flowers white, fruits dark red); without locality, July 1903 (Veitch Exped. No. 3719; bush 1 m., flowers white).

The typical form has not yet been found in Szech'uan; it differs from this variety in its shorter triangular-ovate to lanceolate sepals, larger and usually purplish and glabrescent bracts and in the leaves being glaucescent on their lower surface and usually rounded or even subcordate at the base. The Yunnan specimens of the type have all the sepals very short, scarcely exceeding 1 mm., while the Himalayan specimens have usually at least two of the sepals elongated.

Besides *L. formosa* two other species occur in Yunnan: *L. glaucophylla* Hooker f., of which I have seen Henry's No. 9767, and *L. chinensis* Hemsley.

PUBLICATIONS OF THE ARNOLD ARBORETUM, No. 4

PLANTAE WILSONIANAE

AN ENUMERATION OF THE WOODY PLANTS COLLECTED IN WESTERN CHINA FOR THE ARNOLD ARBORETUM OF HARVARD UNIVERSITY DURING THE YEARS 1907, 1908, AND 1910

BY E. H. WILSON

EDITED BY

CHARLES SPRAGUE SARGENT

PART III

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TROCHODENDRACEAE.

Determined by Alfred Rehder and E. H. Wilson.

EUPTELEA Sieb. & Zucc.

Euptelea pleiosperma Hooker & Thomson in *Jour. Linn. Soc.* VII. 240, t. 2 (1864); in Hooker f., *Fl. Brit. Ind.* I. 39 (1872). — King in *Ann. Bot. Gard. Calcutta*, III. 199, t. 39ª (1891). — Solereder in *Ber. Deutsch. Bot. Ges.* XVII. 399 (1899). — Finet & Gagnepain in *Bull. Soc. Bot. France*, LII. Mém. IV. 25 (1905); *Contrib. Fl. As. Or.* II. 25 (1907).

Euptelea Davidiana Baillon in *Adansonia* XI. 305 (1875). — Franchet in *Nouv. Arch. Mus. Paris*, sér. 2, VIII. 193 (*Pl. David.* II. 11) (1886). — Van Tieghem in *Jour. de Bot.* XIV. 271 (1900). — Hemsley in *Hooker's Icon.* XXVIII. sub t. 2787 (1905), quoad specimina e Mupin et Yunnan. — Finet & Gagnepain in *Bull. Soc. Bot. France*, LII. Mém. IV. 25 (1905); *Contrib. Fl. As. Or.* II. 25 (1907).
Euptelea Delavayi Van Tieghem in *Jour. de Bot.* XIV. 273 (1900).

Western Szech'uan: east of Mao-chou, Chiu-ting-shan, thickets, alt. 1300–2000 m., May 22, 1908 (No. **3546**; bush or small tree, 4–8 m. tall); west of Kuan Hsien, Niu-tou-shan, woods, alt. 1600–2800 m., June 20, 1908 (No. **3546ª**; small tree 8 m. tall); without precise locality, alt. 1600–2600 m., July 1903 (Veitch Exped. No. 3133); Wei-kuan, *A. von Rosthorn* (No. 2517). Yunnan: Mengtze, mountains north, woods, alt. 2300 m., *A. Henry* (No. 10746). —

This small tree is abundant in the thickets and margins of woods, especially in the vicinity of streams throughout western Szech'uan from the neighborhood of Sung-pan in the north to Tachien-lu in the west and southwards through Yunnan. We have no specimens actually localized from Mupin, but have them from the northern, southern and western boundary of this petty state. We have not seen the type of Baillon's *E. Davidiana*, but the geographical distribution so strongly supports Solereder's evidence that there can be no doubt but Baillon's fragment is referable to the same species and to its numerous specimens before us.

Hooker & Thomson describe the under surface of the leaves as "pale," but glaucescent gives a better idea of the appearance, which is due to a dense covering of papillae. This glaucescent appearance of the under surface readily distinguishes this species which, like *E. Franchetii*, is a small bushy tree, with thin branches and leaves assuming brilliant tints in the autumn.

Our specimen of Henry's 10746 has all the leaves ovate, acuminate and broadly

cuneate at the base with straight sides, and nearly evenly toothed. In our No. 3546, leaves similar to the above and others nearly orbicular or obovate-orbicular, and irregularly toothed, occur on the same branch.

Euptelea Franchetii Van Tieghem in *Jour. de Bot.* XIV. 272 (1900). — Vilmorin & Bois, *Frut. Vilmorin.* 9, fig. (1904). — Finet & Gagnepain in *Bull. Soc. Bot. France*, LII. Mém. IV. 25 (1905), quoad specimina Fargesii et Henryi; *Contrib. Fl. As. Or.* II. 25 (1907).

Euptelea polyandra Diels in *Bot. Jahrb.* XXIX. 346 (non Siebold & Zuccarini) (1900). — Pampanini in *Nuov. Giorn. Bot. Ital.* n. ser. XVII. 267 (1910); XVIII. 115 (non Siebold & Zuccarini) (1911).

Euptelea Davidiana Hemsley in *Hooker's Icon.* XXVIII. t. 2787 (non Baillon) (1905), quoad tabulam et specimina Fargesiana, Wilsoniana, Henryana No. 10746 excepto.

Western Hupeh: Hsing-shan Hsien, woodlands, alt. 1000–1600 m., May, June and August 1907 (No. **139**; tree 5–13 m. tall); Changyang Hsien, woodlands, alt. 1000–1600 m., July and September 1907 (No. **139**[a]; tree 6–10 m. tall); Patung Hsien, woods, alt. 1000–1600 m., October 1907 (No. **219**; small, bushy tree 3–10 m. tall); Hsing-shan Hsien, woods, alt. 1300–2000 m., November 1907 (No. 588; tree 13 m. tall, 1 m. girth); without locality, April, August and October 1900 (Veitch Exped. No. 1048); without locality, *A. Henry* (No. 6455); "Monte Si-ho, Ou-tan-scian," July 1909, *C. Silvestri* (No. 2960). Eastern Szech'uan: without precise locality, *A. Henry* (No. 7337). South-east Szech'uan: Nanch'uan, *A. von Rosthorn.* Shensi: Tai-pei-shan, 1910, *W. Purdom;* "Kin-ton-san," July 1897, *J. Giraldi*; various localities, June, July and August 1899, *Hugh Scallan.*

As pointed out by Hemsley (l. c.) the particular characters on which Van Tieghem founded this species are not constant and are of little value. The overlooked character of the green under-surface of the leaves, with perfectly smooth non-papillose epidermis is, however, constant and affords a means by which this species may be distinguished at a glance. Specimens before us prove that the relative length of the filament and anther is merely a question of age and growth, as enunciated first by Hemsley, whose figure (l. c.) admirably depicts this species but whose description in part includes the western species *E. pleiosperma,* Hooker & Thomson.

E. Franchetii is one of the most common of small trees throughout western Hupeh and eastern Szech'uan, occurring by the sides of streams, on the margins of moist woods and thickets.

The species of this genus have proved very difficult to deal with systematically and various authorities have arrived at different conclusions in regard to them. With the mass of material before us we are convinced that in China two species, each occupying well-defined geographical areas, occur. The shape and size of the leaves and degree of their dentation, the relative length of the filaments and

anthers, the size and shape of the fruit and the number of seeds in each are all inconstant and cannot be relied upon. Finet & Gagnepain (l. c.) give a key to the species based on the shape of the fruit. Specimens before us show all forms on the same branch. The appearance of the under surface of the leaves, however, affords a constant character by which the species, and especially the two Chinese species, may easily be recognized. Solereder (l. c.) was the first to draw attention to this and an exhaustive examination of our material amply supports his conclusions as to the identity of Baillon's *E. Davidiana* with Hooker & Thomson's *E. pleiosperma*.

The three species of the genus may be recognized by the following characters: —

E. polyandra Siebold & Zuccarini: bark brown; dentation of leaves irregular and more exaggerated in this respect than in other species; under surface of leaves pale green and exhibiting a tendency towards papillosity; fruit normally 1-seeded although 2 seeds are occasionally to be found. Distribution: Japan.

E. Franchetii Van Tieghem; bark dark; dentation of leaves fairly regular; under surface of leaves green; non-papillose, the epidermis being perfectly smooth; fruit 1–4 (usually 2–3)-seeded. Distribution: central China.

E. pleiosperma Hooker & Thomson: bark dark; dentation of leaves fairly regular; under surface of leaves glaucescent, papillose; fruits rather larger than in other species, 1–4 (usually 2–3)-seeded. Distribution: Mishmi Hills, north-east of Assam, western and south-western China.

The flowers in all three species are hermaphrodite, proterandrous and anemophilous, not polygamous as usually stated. The stamens are early deciduous, falling away before the stigmas of the female flowers borne on the same fascicle or on the same shoot are mature. The statement that the trees are diœcious is erroneous and has led to much confusion.

CERCIDIPHYLLACEAE.

Determined by Alfred Rehder and E. H. Wilson.

CERCIDIPHYLLUM Sieb. & Zucc.

Cercidiphyllum japonicum Siebold & Zuccarini in *Abhand. Akad. Münch.* IV. pt. III. 238 (*Fl. Jap. Fam. Nat.* II. 114) (1846). — Miquel in *Ann. Mus. Lugd.-Bat.* III. 140 (1867). — Maximowicz in *Bull. Acad. Sci. St. Pétersbourg*, sér. 3, XVII. 142 (1872). — Sargent in *Garden & Forest*, VI. 52, fig. 9 (1893); VII. 104, fig. 21–22 (1894). — Shirasawa, *Icon. Ess. For. Jap.* I. t. 41 (1900). — Finet & Gagnepain in *Bull. Soc. Bot. France*, LII. Mém. IV. 26 (1905); *Contrib. Fl. As. Or.* II. 26 (1907).

Cercidiphyllum japonicum, var. **sinense** Rehder & Wilson, n. var.

A typo differt petiolis brevioribus circiter 2 cm. longis, foliis basi saepius subcordatis v. fere truncatis subtus secus nervos basim versus pilis patentibus instructis, capsulis 2–3 apice sensim attenuatis stylo persistente plerumque fere recto coronatis 10–15 mm. longis. — Arbor 20–40 m. altus, trunco 2–18 m. plerumque 3–6 m. circuitu, solitari rarissime e basi in truncos 2–3 divergente.

Western Szech'uan: Lungan Fu, Tu-ti-liang-shan, open country, alt. 2300–2800 m., August and October 1910 (No. **4301**, type); Wa-shan, woodlands, alt. 1600–2600 m., September 1908 (No. **742**[a]). Western Hupeh: Fang Hsien, alt. 2000–2600 m., May and October 1907 (No. **742**); same locality, June 16, 1910 (No. **742**[b]). Shensi: southern slopes of the Tai-pei-shan, alt. 2300 m., 1910, *W. Purdom.*

We have seen no flowers of this variety, and in the herbarium material the characters which distinguish it from the type are rather slight. In habit the two trees are different. The Japanese tree has usually several trunks which, if occasionally united at the base, diverge a few feet above the ground. Sometimes, however, the trunk is single and free of branches for 16 m. above the ground. The Chinese tree has usually but one trunk and lateral branches commence a few feet above the ground; occasionally a few small stems are found growing around the base of the tree. Very rarely are two or three trunks developed and we never saw more than half a dozen such examples among the thousands of trees we have seen. The Japanese tree affects the forest depths, the Chinese tree open

park-like areas or glades, always in moist situations where the soil is rich; a favorite site is alongside the mountain torrents.

This Chinese tree is now in cultivation and, for the present at any rate, it would appear best to consider it as a variety distinct from the Japanese type. In time we may learn more from the cultivated trees of both forms and their taxonomic rank may then be more accurately determined.

The Chinese Cercidiphyllum is abundant in the mountains of the Lungan prefecture, in north-western Szech'uan, and trees of huge dimensions occur. It is fairly common around the base of Wa-wu-shan in the Yachou prefecture, western Szech'uan. In the highlands of the Han-Yangtsze divide, in the districts of Hsing-shan and Fang, western Hupeh, it is also plentiful. Both in height and girth this tree exceeds all other broad-leaved deciduous trees known from China. It attains a great age and is very tenacious of life. Old, hollow stumps of trees, broken down by winds and partially destroyed by fire, still continue to develop green, leafy branches until utterly destroyed and up-rooted. Owing doubtless to some obscure resemblance in the foliage and general appearance of the two trees the Cercidiphyllum is colloquially known by the same name as the Ginkgo, viz. "Peh-k'o." Pictures of this tree will be found under No. 095, 096, 086, 0276 of Wilson's collection of photographs and also in his *Vegetation of Western China*, No. 163.

RANUNCULACEAE.

Determined by Alfred Rehder and E. H. Wilson.

PAEONIA Linn.

Paeonia Delavayi Franchet in *Bull. Soc. Bot. France*, XXXIII. 382 (1886); *Pl. Delavay.* I. 31 (1889). — Huth in *Bot. Jahrb.* XIV. 273 (1892). — Finet & Gagnepain in *Bull. Soc. Bot. France*, LI. 524 (1904); *Contrib. Fl. As. Or.* I. 221 (1905).

Paeonia Delavayi, var. **angustiloba** Rehder & Wilson, n. var.

Suffrutex stoloniferus, 0.6–1.30 cm. altus, glaberrimus; rami crassi inferne lignosi. Folia bi-ternati-secta, membranacea, laete viridia, subtus glaucescentia, 15–25 cm. longa et 15–30 cm. lata; segmenta pinnatifida, sensim in petiolulum alatum decurrentia, lobis utrinque 2–4 lanceolatis et anguste lanceolatis acuminatis, 2–6 cm. longis, et 0.5–1 cm. latis, integris v. dentibus paucis triangularibus v. lanceolatis instructis, costa media venisque secundariis subtus elevatis; petioli 5–15 cm. longi, supra canaliculati, basi dilatati. Flores plerumque plures in apice ramulorum, terminales et axillares, cupuliformes, 5–6 cm. diam., ante anthesin subglobosi, nutantes, longe pedicellati pedicello 4–14 cm. longo; calyx bracteis foliaceis 3 linearilanceolatis acuminatis 2.5–8 cm. longis integris v. pinnatisectis persistentibus suffultus; sepala 5, interiora tria suborbicularia, dimidiis petalis subaequilonga, exteriora minora in bracteas transientia; petala ovalia v. late ovalia, 5–8, concava, 2.5–3 cm. longa et 2 cm. lata, apice leviter eroso-dentata v. integra, atropurpurea v. fusco-purpurea; stamina numerosissima, filamentis compressis 4–10 mm. longis flavidis purpurascentibus glabris, antheris luteis oblongis 4–5 mm. longis; discus cupularis, 3–4 mm. longus, irregulariter dentatus; carpella 3, rarius 2 v. 4, purpurascentia, glabra, stigmate obliquo. Folliculi 2–3, ovoidei, 2–2.5 cm. longi, subito in rostrum contracti; semina irregulariter ovoidea, angulosa, circiter 12 mm. longa et 8 mm. lata.

Western Szech'uan: west of Tachien-lu descent to Yalung river, stony places fully exposed to sun, alt. 3000–3600 m., October

1908 (No. 1333, type); same locality, June 1904 (Veitch Exped. No. 3033).

We have given a complete description of this variety which differs from the type chiefly in the narrower segments of its leaves, paler color of stamens and fewer carpels, because the original description of the type is rather short.

Here may be added a note on the habitat of the Moutan, together with its synonymy, which in most publications is incompletely and partly incorrectly quoted.

Paeonia suffruticosa Andrews, *Bot. Rep.* VI. t. 373 (1804).
Paeonia officinalis Thunberg, *Fl. Jap.* 230 (non Linnaeus) (1784).
Paeonia arborea Donn, *Hort. Cantabr.* ed. 3, 102 (nomen nudum) (1804). — K. Koch, *Dendr.* I. 444 (1869). — Dippel, *Handb. Laubholzk.* III. 162 (1893). — Schneider, *Ill. Handb. Laubholzk.* I. 272, fig. 180, 181 d–f (1904).
Paeonia papaveracea Andrews, *Bot. Rep.* VII. t. 463 (1806).
Paeonia moutan Sims in *Bot. Mag.* XXIX. t. 1154 (1809). — Aiton, *Hort. Kew.* ed. 2, III. 315 (1811). — Anderson in *Trans. Linn. Soc.* XII. 252 (*Monog. Paeon.*) (1818). — Huth in *Bot. Jahrb.* XIV. 272 (*Monog. Paeon.*) (1892). — Diels in *Bot. Jahrb.* XXIX. 324 (1900).
Paeonia fruticosa Dumont de Courset, *Bot. Cult.* ed. 2, IV. 462 (1811).

Shensi: Tai-pei-shan, 1910, and 50 li west of Yenan-Fu, 1910, *W. Purdom.*

The specimens quoted above are according to Mr. Purdom from undoubtedly wild plants; he also introduced living plants of this wild form which are now growing in several gardens. The habitat of *P. suffruticosa* has been for a long time uncertain, as all the earlier travelers in China had found it only in gardens. The first mention of its native habitat in north-western China we find in Engler & Prantl, *Nat. Pflanzenfam.* III. 2, 55 (1891) where Prantl states that it occurs in Kansu north of the Hoang-ho, without giving any authority for this statement. Bretschneider (*Hist. Europ. Discov. China*, 425) says that according to a Chinese description of the province of Shensi the Moutan occurs in the district of Han-ch'eng on a hill called Moutan-shan. Between 1890–1896 it was collected by Hugh Scallan and G. Giraldi near Ki-san, Gniu-ju and Lun-shan in Shensi, and now with the added evidence of Purdom's collection there can be no doubt that *P. suffruticosa* is a native of north-western China and was introduced from there into eastern China and into Japan.

CLEMATIS L.

Sect. VIORNA Prantl.

Ser. CRISPAE Prantl.

Clematis pogonandra Maximowicz in *Act. Hort. Petrop.* XI. 8 (1890). — Finet & Gagnepain in *Bull. Soc. Bot. France*, L. 550 (1903); *Contrib. Fl. As. Or.* I. 35 (1905). — Hemsley in *Kew Bull. Misc. Inform.* 1906, 148.

Western Hupeh: Hsing-shan Hsien, rocky places, alt. 1300–1600 m., July 1907 (No. 2489; climber, 2–2.5 m. flowers bronzy-

yellow); Fang Hsien, thickets, alt. 2000–2300 m., August 1907 (No. **2481**; climber, 2–2.5 m., flowers yellow and bronze); without locality, *A. Henry* (No. 6817). Western Szech'uan: south-east of Sungpan, thickets, alt. 2600–3000 m., August 1910 (No. **4550**; climber, 2 m.). Shensi: Tai-pei-shan, 1910, *W. Purdom*.

Clematis pogonandra, var. **pilosula** Rehder & Wilson, n. var.

A typo recedit foliis subtus breviter sericeo-pilosis supra ad venas sparse adpresse pilosis, petiolis pedicellisque et ramulis hornotinis initio sparse pilosis v. villosis.

Western Szech'uan: west of Kuan Hsien, Pan-lan-shan, thickets, alt. 2300–2600 m., June 1908 (No. **2469**; climber, 2–3 m., flowers bronzy-yellow.)

This variety differs from the type only in its pubescence.

Clematis Prattii Hemsley in *Kew Bull. Misc. Inform.*, 1892, 82 (quoad Pratt, Nos. 169, 238). — Finet & Gagnepain in *Bull. Soc. Bot. France*, L. 550 (1903); *Contrib. Fl. As. Or.* I. 35 (1905). — Hemsley in *Kew Bull. Misc. Inform.* 1906, 148.

Western Szech'uan: west of Tachien-lu, on rocks, alt. 3600 m., July 24, 1908 (No. **2470**; climber, 1.5–2.5 m., flowers golden-yellow); without precise locality, alt. 3600–4000 m., June 1904 (Veitch Exped. No. 3126).

Clematis Faberi Hemsley & Wilson in *Kew Bull. Misc. Inform.* 1906, 148.

Western Szech'uan: Mupin, over rocks, alt. 1600–2000 m., June 1908 (No. **2482**; climber, 2–2.5 m., flowers yellow); without precise locality, over rocks, alt. 3000–3300 m., July 1903 (Veitch Exped. No. 3125, type).

To this group also belongs the following very rare species not collected during the Arnold Arboretum expeditions:

Clematis repens Finet & Gagnepain in *Bull. Soc. Bot. France*, L. 548, t. 16 (1903); *Contrib. Fl. As. Or.* I. 33, t. 16 (1905).

Western Szech'uan: Mt. Omei, alt. 2000 m., on tree trunks and rocks, October 1903 (Veitch Exped. No. 3122).

Ser. Tubulosae Decaisne.

Clematis heracleaefolia De Candolle, *Syst.* I. 138 (1818); *Prodr.* I. 3 (1824). — Forbes in *Jour. Bot.* XXII. 263 (1884). — Kuntze in

Verh. Bot. Ver. Brandenb. XXVI. 182 (*Monog. Clem.*) (1885). — Hemsley in *Jour. Linn. Soc.* XXIII. 4 (1886). — Pritzel in *Bot. Jahrb.* XXIX. 332 (1900). — Finet & Gagnepain in *Bull. Soc. Bot. France,* L. 545 (1903); *Contrib. Fl. As. Or.* I. 31 (1905). — Pampanini in *Nuov. Giorn. Bot. Ital.* n. ser. XVII. 269 (1910).

Clematis tubulosa Turczaninow in *Bull. Soc. Nat. Mosc.* X. 7. 148 (1837). — Hooker in *Bot. Mag.* LXXII. t. 4269 (1846). — Lindley in *Jour. Hort. Soc.* III. 78 (1848). — Paxton, *Mag. Bot.* XIV. 31, t. (1848). — Hance in *Jour. Linn. Soc.* XIII. 75 (1873). — Maximowicz in *Bull. Acad. Sci. St. Pétersbourg,* XXII. 214 (1876); in *Mél. Biol.* IX. 589 (1876). — Decaisne in *Nouv. Arch. Mus. Paris,* sér. 2, IV. 204 t. 9 (1881). — Lavallée, *Clem.* 79 (1884). — Schneider, *Ill. Handb. Laubholzk.* I. 281, fig. 184 h, 185 a–c (1906).

Clematis Davidiana Verlot in *Rev. Hort.* 1867, 90. — Decaisne in *Nouv. Arch. Mus. Paris,* sér. 2, IV. 205, t. 10 (1881). — Schneider, *Ill. Handb. Laubholzk.* I. 281, fig. 184 k, 185 f–g (1906).

Clematis Hookeri Decaisne in *Nouv. Arch. Mus. Paris,* sér. 2, IV. 206, t. 11 (1881).

Clematis tubulosa, var. *Davidiana* Franchet in *Nouv. Arch. Mus. Paris,* sér. 2, V. 165 (*Pl. David.* I. 13) (1882).

Clematis tubulosa, var. *Hookeri* Hooker f. in *Bot. Mag.* XLI. t. 6801 (1885).

Clematis heracleaefolia, var. *Davidiana* Hemsley in *Jour. Linn. Soc.* XXIII. 4 (1886).

Type in Manchuria and north-east China.

Plants grown in this Arboretum from seeds collected south of Jehol by M Purdom seem indistinguishable from *C. tubulosa* Turczaninow which represents the type of the species, while all the other synonyms are referable to the var. *Davidiana* Hemsley. These seeds came from the locality where Staunton collected the specimen on which *C. heracleaefolia* De Candolle is founded. From the mass of material before us we are disposed to refer all the continental forms of this group to *C. heracleaefolia* De Candolle and its varieties, considering them all variations of one polymorphic, polygamous species. The Japanese *C. stans* Siebold & Zuccarini (syn. *C. Maximowiczii* Decaisne, *C. Lavallei* Decaisne, *C. Savatieri* Decaisne) with its coarsely toothed and lobed leaves, loosely paniculate inflorescence, small whitish flowers and glabrescent, shining, ovoid achenes, seems to us sufficiently distinct to be considered a species.

Clematis heracleaefolia, var. **ichangensis** Rehder & Wilson, n. var.

Suffruticosa, basi tantum lignosa, ramis pubescentibus. Folia ternata, intense viridia, supra sparse adpresse breviter pilosa, subtus molliter subaccumbenti-villosa praecipue ad nervos; foliolum terminale late ovatum v. rotundato-ovatum, leviter 3-lobatum, breviter acuminatum, basi rotundatum, sparse et inaequaliter dentatum dentibus brevibus plerumque rotundatis mucronatis, 6–10 cm. longum et 4–10 cm. latum, petiolulo 2.5–5 cm. longo cinereo-pubescenti; foliola lateralia subsessilia, ovata v. late ovata, acuta v. breviter acuminata, basi obliqua rotundata v. truncata, saepius lobo unico

ad marginem exteriorem, dentibus ut in foliolo terminali, 3–10 cm. longa et 2.5–8 cm. lata; petioli 5–8 cm. longi, cinereo-pubescentes. Flores in fasciculis cymosis axillaribus et terminalibus sat densis, breviter pedicellati, hermaphroditi, intus intense coerulei, extus dense sericeo-pubescentes. Achaenia dense villosa. Ceterum ut in typo.

Western Hupeh: Ichang, foot of limestone cliff, alt. 50–600 m., August and December 1907 (No. 763, type); same locality (Veitch Exped. No. 2596[a]); without precise locality, *A. Henry* (Nos. 3053, 4359, 4478). "Ou-tan-shan," August 1907, *C. Silvestri* (No. 632); without locality, 1907, *C. Silvestri* (No. 633). Shensi: Tai-pei-shan 1910, *W. Purdom;* "Huan-tuo-san," October 10–20, 1897, *G. Giraldi.*

This variety is chiefly distinguished by its rather dense pubescence. The type agrees in the stems being woody at the base and the leaf-bases rounded, but differs in its more coarsely toothed glabrescent leaves, polygamo-diœcious flowers and sparsely villose achenes. Var. *Davidiana* differs in its herbaceous habit, cuneate leaves, glabrescent and coarsely toothed, and more sessile densely clustered inflorescence. In general appearance this new variety comes nearest to the form found in Shantung, which, however, has more coarsely toothed, less hairy leaves, usually cuneate at the base and unisexual flowers. The Shensi specimen collected by Giraldi is somewhat less pubescent than the other specimens.

Ser. Connatae Koehne.

Clematis pterantha Dunn in *Hooker's Icon.* XXVIII. t. 2713 (1901). — Finet & Gagnepain in *Bull. Soc. Bot. France,* L. 544 (1903); *Contrib. Fl. As. Or.* I. 29 (1905).

Clematis Philippiana Léveillé et Vaniot in *Bull. Acad. Intern. Géog. Bot.* XI. 169 (1902), secundum Finet & Gagnepain.

Clematis pterantha, var. **grossedentata** Rehder & Wilson, n. var.

A typo recedit foliolis minoribus 4–5 cm. longis chartaceis acutis grossius et saepe incise paucidentatis utrinque sparse breviter adpresse pilosis, pedicellis et sepalis extus villosis.

Western Szech'uan: Tung Valley near Wa-shan, thickets, alt. 600 m., rare, September 21, 1908 (No. 2488).

A well-marked variety. In the type the leaves are much larger, papyraceous, long acuminate, less coarsely toothed, glabrous below, the petioles and pedicels also are glabrous.

Clematis lasiandra Maximowicz in *Bull. Acad. Sci. St. Pétersbourg,* XXII. 213 (1876); in *Mél. Biol.* IX. 586 (1876); in *Act. Hort. Petrop.* XI. 7 (1890). — Kuntze in *Verh. Bot. Ver. Brandenb.* XXVI. 169

(*Monog. Clem.*) (1885). — Pritzel in *Bot. Jahrb.* XXIX. 331 (1900). — Finet & Gagnepain in *Bull. Soc. Bot. France*, L. 547 (1903); *Contrib. Fl. As. Or.* I. 32 (1905).

Western Hupeh: Changyang Hsien, thickets, alt. 1300 m., September and November 1907 (No. **673**; climber 3–4 m. high, flowers reddish-purple without); north and south of Ichang, thickets, alt. 1000–1600 m., September and December 1907 (Nos. **679**, **679**[a]; climbers 3–5 m., flowers red-purple without, buds and young shoots viscid); without locality, July and November 1900 (Veitch Exped. Nos. 1471, 1471[a]; seed No. 880); without locality, *A. Henry* (Nos. 3694, 6713); "Mt. Triora," alt. 1950 m., September 1907, *C. Silvestri* (No. 637). Western Szech'uan: south-east of Tachien-lu, woodlands, alt. 2300–2600 m., October 1908 (No. **1315**[a]; climber 3–4 m.); without locality, October 1903 (Veitch Exped. No. 3119); Mt. Omei, October 1904 (Veitch Exped. No. 4696). Shensi: Tai-pei-shan, 1910, *W. Purdom.*

An exceedingly common species throughout central and western China, growing in thickets and margins of woods. The leaves vary considerably in size. The young shoots, more especially the nodes, and the flower-buds are viscid. The flowers vary in color from nearly white to dark red-purple. Maximowicz (*Act. Hort. Petrop.* XI. 7) was disposed to regard the Chinese plant as distinct from the Japanese. With the large series of specimens before us we can find no characters on which to separate them. The color of the flowers is variable even in the Japanese plant, and although the type has white flowers a specimen before us from Nanokawa, Tosa, Japan, has obviously pale red-purple flowers.

In this group and near the preceding species belong also the two following species not collected during the Arnold Arboretum expeditions:

Clematis urophylla Franchet in *Bull. Soc. Linn. Paris*, I. 433 (1884). — Hemsley in *Jour. Linn. Soc.* XXIII. 7 (1886). — Pritzel in *Bot. Jahrb.* XXIX. 333 (1900). — Finet & Gagnepain in *Bull. Soc. Bot. France*, L. 542 (1903); *Contrib. Fl. As. Or.* I. 27 (1905).

Clematis japonica, δ. *urophylla* Kuntze in *Verh. Bot. Ver. Brandenb.* XXVI. 159 (*Monog. Clem.*) (1885).

Western Szech'uan: Mt. Omei, alt. 2000 m., October 16, 1903 (Veitch Exped. No. 3121). Yunnan: Mengtze, forests, alt. 2300 m., *A. Henry* (No. 11347; flowers white).

Clematis pseudo-pogonandra Finet & Gagnepain in *Bull. Soc. Bot. France*, L. 549, t. 17 (1903); *Contrib. Fl. As. Or.* I. 35 t. 17 (1905).

Western Szech'uan: without precise locality, alt. 4100 m., July 1903 (Veitch Exped. 3123).

Clematis nutans Royle, *Ill. Bot. Himal.* 51 (1839). — Hooker f. & Thomson in Hooker, f., *Fl. Brit. Ind.* I. 5 (1872). — Kuntze in *Verh. Bot. Ver. Brandenb.* XXVI. 129 (*Monog. Clem.*) (1885).

We have seen no specimens from China referable to the Indian plant; all belong to the following variety:

Clematis nutans, var. **thyrsoidea** Rehder & Wilson, n. var.

Clematis Buchaniana, β. *vitifolia* Bois in *Jour. Soc. Hort. France*, sér. 4, I. 866, fig. 34 (non Hooker f. & Thomson) (1900).—L. Henry in *Rev. Hort.* 1905, 437, fig. 180.

Clematis Buchananiana Finet & Gagnepain in *Bull. Soc. Bot. France*, sér. 4, III. 541 (non De Candolle) (1903); *Contrib. Fl. As. Or.* I. 26 (1905).

Clematis nutans Bean in *Kew Bull. Misc. Inform.* 1910, 392.—*Gard. Chron.* ser. 3, XLVIII. 310, fig. 129 (1910).—*Garden* LXXV. 557, fig. (1911).

Frutex scandens, 3–6-metralis. Folia pinnata, 2–5-juga, rarius segmentis inferioribus 3-foliolatis; foliola late ovata, rarius ovato-lanceolata, breviter acuminata, basi cordata, rarius truncata v. late cuneata, plerumque 3-lobata, grosse dentata dentibus plerumque late ovatis mucronatis, 4–7 cm. longa et 3–5 lata, supra laete viridia, initio pilis brevibus nitidis conspersa v. fere glabra, subtus densius v. sparsius breviter sericeo-pilosa, rarius fere glabra, venis subtus elevatis conspicuis. Inflorescentia axillaris, pedunculo erecto robusto 8–15 cm. longo sustenta, paniculata, satis compacta, plerumque multiflora, bracteis membranaceis pallidis, rarius par inferior foliaceus, instructa; flores graciliter pedicellati, nutantes, pallide flavi. Achaenia late ovoidea, compressa, brunnea, 3–3.5 mm. longa, accumbenti-villosa. Ceterum ut in typo.

Western Szech'uan: Tachien-lu, thickets, alt. 2300–3300 m., June and October 1908 (No. **1315**, type; climber 2.5–5 m., flowers creamy yellow); north-east of Sungpan, upland thickets, alt. 3000–3300 m., September 1910 (No. **4546**; climber 6–8 m., flowers pale yellow); Tachien-lu, July 1904 (Veitch Exped. Nos. 3120, 3120ª, 3120ᵇ, seed No. 1422); vicinity of Tachien-lu, *A. E. Pratt* (No. 592).

In general appearance the foliage of this variety somewhat resembles that of *C. Buchananiana* De Candolle with which Finet & Gagnepain have confused it, but the leaves in that species are always simply pinnate and less deeply toothed. In our variety the sepals are about as long as the carpels (1.5–1.8 cm.) recurved at the apex and glabrous on the inside. In *C. Buchananiana* the sepals are nearly twice as long as the carpels (2–4 cm.) and densely pubescent on the inner surface.

This variety is distinguished from the type by its broadly ovate leaflets, usually cordate at the base, silky pubescent below and with more prominent veins. The inflorescence too is larger and more compact. It is very common around Tachien-lu, rambling over shrubs in situations fully exposed to the sun.

Clematis trullifera Finet & Gagnepain in *Bull. Soc. Bot. France*, L. 547 (1903); *Contrib. Fl. As. Or.* I. 32 (1905).

Clematis Buchananiana, var. *trullifera* Franchet, *Pl. Delavay.* I. 3 (1889).

Western Szech'uan: vicinity of Tachien-lu, thickets, alt. 2600–3000 m., August 1908 (No. 2484; climber 4–6 m., flowers creamy white); without locality, October 1903 (Veitch Exped. No. 3118, seed No. 1797).

Common in thickets and hedge-rows in the neighborhood of Tachien-lu.

This species is very closely related to *C. connata* De Candolle, especially to the form *latipes* Kuntze, and would seem to differ from it chiefly in its more coarsely toothed leaves and shorter, more compact inflorescence.

Sect. VITICELLA Prantl.

Ser. Floridae Prantl.

Clematis florida Thunberg, *Fl. Jap.* 240 (1784). — Sims in *Bot. Mag.* XXII. t. 834 (1805). — De Candolle *Syst.* I. 160 (1818); *Prodr.* I. 8 (1824). — Lavallée, *Clém.* 16, t. 5 (1884). — Kuntze in *Verh. Bot. Ver. Brandenb.* XXVI. 149 (*Monog. Clem.*) (1885). — Henry in *Gard. Chron.* ser. 3, XXXII. 51, fig. 20 (1902). — Finet & Gagnepain in *Bull. Soc. Bot. France,* L. 553 (1903); *Contrib. Fl. As. Or.* I. 38 (1905).

Anemone japonica Houttuyn, *Natuurl. Hist.* II. Deel, IX. (XXVII.) 191, t. 55, fig. 1 (1778).
Anemone vel Anemonoides Houttuyn, *Pflanzensyst.* VII. II. t. 55, fig. 1 (1781).
Atragene indica Desfontaines, *Tab. École Mus. Bot. Paris,* 123 (1804).
Atragene florida Persoon, *Syn. Pl.* II. 98 (1807).
Viticella florida Spach, *Hist. Vég.* VII. 264 (1839).
Clematis anemonoides Houttuyn ex Lavallée, *Clém.* 16 (quasi synon.) (1884).[1]
Clematis japonica Houttuyn ex Makino, *Bot. Mag. Tokyo,* XXVI. 81 (non Thunberg) (1912).[1]

Western Hupeh: vicinity of Ichang, May 1900 (Veitch Exped. No. 166); same locality, *A. Henry* (Nos. 791, 3516, 3516[a]).

A very rare plant in Hupeh, so far seen only in the immediate neighborhood of Ichang.

Sect. FLAMMULA Prantl.

Ser. Rectae Prantl.

Clematis Delavayi Franchet in *Bull. Soc. Bot. France,* XXXIII. 360 (1886); *Pl. Delavay.* I. 1 (1889). — Finet & Gagnepain in *Bull. Soc. Bot. France,* L. 537 (1903); *Contrib. Fl. As. Or.* I. 22 (1905).

Western Szech'uan: west of Tachien-lu, stony places, alt. 3000–3300 m., October 1908 (No. 1232; shrub 1–1.5 m. tall, flowers white);

[1] Houttuyn did not make these combinations attributed to him; for the correct quotations see the first two synonyms above.

without precise locality, alt. 3000–3500 m., June 1904 (Veitch Exped. No. 3115).

A pretty shrub with small pinnate leaves, silvery below, not common and restricted to dry, warm river valleys.

Clematis fruticosa Turczaninow in *Bull. Soc. Nat. Mosc.* V. 180 (1832). — Maximowicz in *Bull. Acad. Sci. St. Pétersbourg,* XXII. 210 (1876); in *Mél. Biol.* IX. 582 (1876); in *Act. Hort. Petrop.* XI. 5 (1890). — Pritzel in *Bot. Jahrb.* XXIX. 331 (1900). — Finet & Gagnepain in *Bull. Soc. Bot. France,* L. 537 (1903); *Contrib. Fl. As. Or.* I. 22 (1905).

Clematis recta, *α. fruticosa* Kuntze in *Verh. Bot. Ver. Brandenb.* XXVI. 112 (*Monog. Clem.*) (1885).

Western Szech'uan: Monkong Ting, upper valley of Hsao-chin-ho, local, alt. 3000 m., June 1908 (No. **2483**; bush 0.5–2 m. tall, flowers yellow).

Our specimens are intermediate between the two forms distinguished by Turczaninow (l. c.), having the entire leaves and sub-glabrous sepals of var. *α. viridis* and the acuminate sepals of var. *β. canescens*.

This plant is very local in western Szech'uan, occurring only in arid places.

Clematis Armandi Franchet in *Nouv. Arch. Mus. Paris,* sér. 2, VIII. 184, t. 2 (*Pl. David.* II. 2) (1885). — Pritzel in *Bot. Jahrb.* XXIX. 332 (1900). — Finet & Gagnepain in *Bull. Soc. Bot. France,* L. 526 (1903); *Contrib. Fl. As. Or.* I. 11 (1905). — *Gard. Chron.* ser. 3, XXXVIII. 30, t. (1905). — Pampanini in *Nuov. Giorn. Bot. Ital.* n. ser. XVII. 269 (1910).

Clematis hedysarifolia, *γ. Armandi* Kuntze in *Verh. Bot. Ver. Brandenb.* XXVI. 152 (*Monog. Clem.*) (1885).

Clematis Biondiana Pavolini in *Bull. Soc. Tosc. Ort.* XXXII. 285 (1907); in *Nuov. Giorn. Bot. Ital.* n. ser. XV. 401 (1908).

Western Hupeh: Changyang Hsien, thickets, alt. 600–1300 m., April and July 1907 (No. 95, in part; climber 2–5 m., flowers white, fragrant); Hsing-shan Hsien, alt. 600–1300 m., April 1907 (No. **95**, in part; climber 2–5 m., evergreen, flowers white); Patung Hsien, banks of Yangtsze river, alt. 60 m., March 23, 1908 (No. **2468**; climber 4 m., flowers white); without locality, April 1900 (Veitch Exped., Nos. 2, 26); without locality, *A. Henry* (Nos. 1468, 3377, 5998, 7784^{b}, 5223^{a}, 5223^{b}, 5223^{c}); "Kao-kien-sian," alt. 800 m., May–June 1907, *C. Silvestri* (No. 629). Western Szech'uan: Chiu-ting-shan, thickets, alt. 1600 m., May and September 1908 (No. **855**; climber 3–4 m.,

flowers white); without precise locality, alt. 300–1300 m., March 1904 (Veitch Exped. No. 3116); Mt. Omei, May 1904 (Veitch Exped. No. 4695); without locality, *A. Henry* (No. 7904).

By the Chinese in Hupeh this plant is called Wei-ling-hsien.

Clematis Armandi, f. **Farquhariana** Rehder & Wilson, n. forma.

A typo recedit floribus majoribus pallide roseis, sepalis ad 4 cm. longis et ad 14 mm. latis. Foliola anguste ovata, circiter 10 cm. longa et 5–5.5 cm. lata.

Western Hupeh: Changyang Hsien, thickets, alt. 800–1300 m., April 1907 (No. 95[a]; climber 2–5 m., flowers bluish).

Distinguished from the type by its pale pink colored flowers which are usually also much larger.[1]

Clematis uncinata Champion in *Hooker Jour. Bot. & Kew Gard. Misc.* III. 255 (1851). — Bentham, *Fl. Hongk.* 6 (1861). — Maximowicz in *Bull. Acad. Sci. St. Pétersbourg*, XXII. 220 (1876); in *Mél. Biol.* IX. 597 (1876). — Hemsley in *Jour. Linn. Soc.* XXIII. 7 (1886). — Pritzel in *Bot. Jahrb.* XXIX. 332 (1900). — Finet & Gagnepain in *Bull. Soc. Bot. France*, L. 523 (1903); *Contrib. Fl. As. Or.* I. 8 (1905). — Pampanini in *Nuov. Giorn. Bot. Ital.* n. ser. XVII. 271 (1910). — Dunn & Tutcher in *Kew Bull. Misc. Inform.* Add. ser. X. 26 (*Fl. Kwangtung & Hongkong*) (1912).

Clematis recta, ξ. *chinensis*, 4. *uncinata* Kuntze in *Verh. Bot. Ver. Brandenb.* XXVI. 115 (*Monog. Clem.*) (1885).
Clematis leiocarpa Oliver in *Hooker's Icon.* XVI. t. 1533 (1886).
Clematis Drakeana Leveillé & Vaniot in *Bull. Acad. Intern. Géog. Bot.* XI. 168 (1902).

[1] In the affinity of *C. Armandi* belongs the following new species from Yunnan:

Clematis fulvicoma Rehder & Wilson, n. sp.

Frutex alte scandens ramis subteretibus. Folia subcoriacea, ovata v. late ovata, breviter acuminata, basi leviter cordata v. truncata, sed in petiolum breviter producta, integra 11–18 cm. longa et 8–15 cm. lata, palmatim 5–7-nervia, glabra, laete viridia, concoloria, supra subnitentia, leviter reticulata, subtus manifestius reticulata; petioli cirrhosi, subteretes, 8–10 cm. longi. Inflorescentia axillaris, racemosa, aphylla, 5–9-flora, pedunculata; pedicelli ut rhachis dense pilis brevibus fulvis obtecti, subaequilongi, 4–5 cm. longi; flores desiderantur. Achaenia (immatura) dense pilis longis suberectis fulvis obtecta, in stylum plumosum fulvum 5–7 cm. longum desinentia.

Yunnan: Mengtze, southern mountains, *A. Henry* (No. 9377).

Apparently closely related to *C. smilacifolia* Wallich, which is easily distinguished, however, by its narrower, thicker, not reticulate leaves often more or less peltate at the base and by the grayish and shorter pubescence of the achenes.

Kiangsi: Kuling, thickets, alt. 1600 m., July 1907 (No. **1549**; climber 4–6 m., flowers white). Hupeh: vicinity of Ichang, thickets, alt. 300–1200 m., June and October 1907 (No. **403**, in part; climber 2.5–4 m., flowers white); Hsing-shan Hsien, thickets, alt. 300–1200 m., May 24, 1907 (No. **403**, in part; climber 2.5–4 m. flowers white, fragrant); without precise locality, May and August 1900 (Veitch Exped. Nos. 457, 1590); without locality, *A. Henry* (Nos. 714[a], 1173, 1553, 3622[a], 4385, 6008, 6212); "Monte di Ki-tcen," alt. 600 m., July and August 1906, *C. Silvestri* (No. 672). Western Szech'uan: Mt. Omei, July 1904 (Veitch Exped. No. 4698). Yunnan: vicinity of Mengtze, alt. 1600–2000 m., *A. Henry* (Nos. 9431[a], 9431[b], 9431[c], 9431[d]).

Clematis Pavoliniana Pampanini in *Nouv. Giorn. Bot. Ital.* n. ser. XVII. 270 (1910).

Clematis hedysarifolia, var. *oreophila* Pavolini in *Nuov. Giorn. Bot. Ital.* n. ser. XV. 401 (non *C. oreophila* Hance) (1908).

Western Hupeh: vicinity of Ichang, thickets, alt. 1000–1200 m., May and October 1907 (No. **416**, in part; climber 2–4 m., flowers white); Patung Hsien, alt. 1000 m., May and October 1907 (No. **416**, in part; climber 2–4 m., flowers white); without locality, *A. Henry* (No. 3529). Szech'uan: without locality, *E. Faber* (No. 736). Chekiang: vicinity of Ningpo, 1908, *D. Macgregor*.

The narrower leaflets, usually racemose, not paniculate inflorescence, acute sepals and fulvous awns to the carpels sufficiently distinguish this species from *C. Meyeniana* Walpers with which it has been confused in herbaria. We have seen no specimens from central or western China which could be referred to *C. Meyeniana* Walpers, and it is probable that this species is restricted to southern and sub-tropical parts of China. We suspect that many of the specimens referred to *C. Meyeniana* by Finet & Gagnepain (*Contrib. Fl. As. Or.* I. 15 (1905)), belong to *C. Pavoliniana*.

C. Pavoliniana is very common in the glens and ravines round Ichang up to 1000 m. alt.

Clematis quinquefoliolata Hutchinson in *Gard. Chron.* ser. 3, XLI. 3 (1907).

Clematis Meyeniana heterophylla Gagnepain in Vilmorin & Bois, *Frut. Vilmorin.* 3 fig. (1904).

Western Hupeh: Fang Hsien, thickets, alt. 1000–1600 m., July 1907 (No. **426**, in part; climber 3–5 m., flowers white); without locality, July 1900 (Veitch Exped. Nos. 1442, 2310); without locality, *A. Henry* (Nos. 4185, 4332). Eastern Szech'uan: south Wushan

Hsien, thickets, alt. 1300 m., July and October 1907 (No. **426**, in part; climber 3–5 m., flowers white).

Very common in western Hupeh up to 1300 m. alt. The fulvous colored awns are strikingly handsome.

Clematis obscura Maximowicz in *Act. Hort. Petrop.* XI. 6 (1890). Western Hupeh: Hsing-shan Hsien, thickets, alt. 1100 m., June 1907 (No. **2478**; climber 2–3m., flowers white). Western Szech'uan: near Chungking, banks of Yangtsze river, alt. 300 m., April 1908 (No. **2471**; climber 2–3 m., flowers white); Chiu-ting-shan, thickets, alt. 1300–1500 m., May 26, 1908 (No. **2472**; climber 2–4 m., flowers white, fragrant); near Sungpan, thickets, alt. 2300–2600 m., August 1910 (No. **4549**; climber 2–3 m., flowers white). Shensi: north-west of Han-cheng Hsien, 1910, *W. Purdom* (No. 382).

This plant always dries black and at first sight suggests a large-flowered variety of *Clematis chinensis* Retzius. The leaves, however, are usually pinnately 7-foliolate, the basal pair being often trifid or even trifoliolate. The leaflets vary considerably in size and shape and in depth of the incisions; the flowers are often 4 cm. across, with 5–8 sepals and are fragrant; the awns are fulvous-brown.

Clematis chinensis Retzius, *Observ.* II. 18, No. 53, t. 2 (1781). — De Candolle, *Syst.* I. 137 (1818); *Prodr.* I. 3 (1824). — Forbes in *Jour. Bot.* XXII. 262 (1884). — Hemsley in *Jour. Linn. Soc.* XXIII. 3 (1886). — Pritzel in *Bot. Jahrb.* XXIX. 332 (1900). — Finet & Gagnepain in *Bull. Soc. Bot. France*, L. 535 (pro parte) (1903); *Contrib. Fl. As. Or.* I. 20 (pro parte) (1905).

Clematis sinensis Loureiro, *Fl. Cochin.* 345 (1790).
Clematis minor Loureiro, *Fl. Cochin.* 345 (1790). — De Candolle *Syst.* I. 136 (1818). — Forbes in *Jour. Bot.* XXII. 263 (1884).
Clematis recta, ξ. *chinensis* Kuntze in *Verh. Bot. Ver. Brandenb.* XXVI. 114 (*Monog. Clem.*) (1885).
Clematis funebris Léveillé & Vanoit in *Bull. Acad. Intern. Géog. Bot.* XI. 168 (1902).

Kiangsi: Kuling, thickets, alt. 1300 m., July 30, 1903 (No. **1550**; climber 2.5–3 m., flowers white). Western Hupeh: Ichang, thickets, alt. 300–1000 m., June 6–August 1907 (Nos. **2473**, **2477**; climbers 2–3 m., flowers white); without locality, August 1900 (Veitch Exped. Nos. 1679, 1306); without locality, *A. Henry* (Nos. 1601, 4328, 4348, 6220). Western Szech'uan: Kiating Fu, roadside thickets, alt. 300–600 m., September 5, 1908 (No. **1357**; climber 2–3 m., flowers white, fragrant); banks of Yangtsze river, April 1903 (Veitch Exped. 3124).

This species has been much confused with that named by Hemsley *C. Benthamiana*. The differences pointed out by Forbes (l. c.) seem to us sufficient to make the separation of these species possible. The Chinese name in Hupeh for this plant is Chin-lung-hsü.

Clematis chinensis, f. **vestita** Rehder & Wilson, n. f.

A typo recedit ramulis foliisque sparse pubescentibus et stylis achaeniorum pilis albido-brunneis plumosis.

Western Hupeh: north and south of Ichang, thickets, alt. 300–1100 m., June 1907 (No. 2474; climber 2–3 m., flowers white.)

Differs from the type in having the shoots and leaves everywhere sparsely pubescent; the awns, too, are brownish-white.

Clematis Benthamiana Hemsley in *Jour. Linn. Soc.* XXIII. 2 (1886). — Dunn & Tutcher in *Kew Bull. Misc. Inform.* add. ser. X. 26 (*Fl. Kwangtung & Hongkong*) (1912).

Clematis ternifolia Bentham, *Fl. Hongk.* 7 (1861), sphalmate pro *C. terniflora*.
Clematis terniflora Forbes in *Jour. Bot.* XXII. 263 (non De Candolle) (1884).
Clematis chinensis Finet & Gagnepain in *Bull. Soc. Bot. France*, L. 535 (pro parte, non Retzius) (1903); *Contrib. Fl. As. Or.* I. 20 (pro parte, non Retzius) (1905).

Western Hupeh: Changlo Hsien, alt. 600–1000 m., July 1907 (No. **2475**; climber 2–4 m., flowers white); Patung Hsien, thickets, alt. 300–1000 m., June 1907 (No. **2476**; climber, flowers white); without locality, *A. Henry* (Nos. 1062, 1497, 1518, 2773, 4368). Chekiang: vicinity of Ningpo, 1908, *D. Macgregor*.

This, like *Clematis chinensis* Retzius, is a low-level species very common all over the warmer parts of China. The leaves are usually more coriaceous than those of *C. chinensis*. Forbes (l. c.) gives a good account of the differences between *C. Benthamiana* and *C. chinensis*, but makes the mistake of retaining the name *C. terniflora* for the former. That name, however, belongs to *C. recta*, var. *mandshurica* Maximowicz, as Staunton's specimen which must be considered the type of De Candolle's *C. terniflora* represents *C. recta*, var. *mandshurica*, while *C. Flammula* var. of Linnaeus' herbarium, which is also quoted by De Candolle as a synonym of *C. terniflora* and entered partly into his description belongs, according to Forbes, to *C. chinensis*. If, therefore, *C. recta*, var. *mandshurica* is raised to specific rank the name *C. terniflora* must replace *C. mandshurica* Ruprecht.

Clematis paniculata Thunberg in *Trans. Linn. Soc.* II. 337 (1794). — De Candolle, *Syst.* I. 136 (1818); *Prodr.* I. 3 (1824). — Miquel in *Ann. Mus. Lugd.-Bat.* III. 1 (1867). — Franchet & Savatier, *Enum. Pl. Jap.* I. 1 (1875). — Maximowicz in *Bull. Acad. Sci. St. Pétersbourg*, XXII. 219 (1876); in *Mél. Biol.* IX. 595 (1876). — Franchet in *Nouv. Arch. Mus. Paris*, sér. 2, V. 164 (*Pl. David.* I. 12) (1882). —

Hemsley in *Jour. Linn. Soc.* XXIII. 6 (1886). — Sargent in *Garden and Forest*, III. 620, fig. 82 (1890). — Pritzel in *Bot. Jahrb.* XXIX. 332 (1900). — Mottet in *Rev. Hort.* 1902, 86, fig. 31. — Pampanini in *Nouv. Giorn. Bot. Ital.* n. s. XVII. 270 (1910).

Clematis Vitalba e Japonia Houttuyn, *Pflanzensyst.* VII. 309, t. 55, f. 2 (1781).
Clematis crispa Thunberg, *Fl. Jap.* 239 (non Linnaeus) (1784).
Clematis virginica Thunberg, *Fl. Jap.* 230 (non Linnaeus) (1784).
Clematis Flammula robusta, Carrière in *Rev. Hort.* 1874, 465, fig. 59; 1899, 529, fig. 227.
Clematis recta, π. *paniculata* Kuntze in *Verh. Bot. Ver. Brandenb.* XXVI. 115 (*Monog. Clem.*) (1885).
Clematis recta Finet & Gagnepain in *Bull. Soc. Bot. France*, L. 535 (1903); *Contrib. Fl. As. Or.* I. 20 (non Linnaeus) (1905).

Kiangsi: Kiukiang plain, hedgerows, common, alt. 100 m., July 27, 1907 (No. 1548; climber 5 m., flowers white). Hupeh: without locality, *A. Henry* (No. 309).

Ser. Montanae Schneider.[1]

Clematis gracilifolia Rehder & Wilson, n. sp.

Frutex scandens, 2–3-metralis, ramis leviter sulcatis subteretibus; ramuli hornotini adpresse cinereo-villosuli, annotini glabri, fusci. Folia decidua, pinnata, plerumque 5-, interdum 7-foliolata; foliola ovata v. oblongo-ovata, breviter petiolulata, basi late cuneata, acuta, grosse v. inciso-dentata dentibus utrinque 1–3 mucronatis, terminale saepe tripartitum, 1–1.5 cm. longa et 0.5–1 cm. lata, utrinque adpresse pilosa, maturitate chartacea, obscure viridia, concoloria, costa et nervis secundariis subtus elevatis; petioli 2–3.5 cm. longi, cirrhosi, sparse pilosi. Flores albi, 2.5–3 cm. diam., 1–4-fasciculati, e gemmis perulatis simul cum foliis orientes; pedicelli graciles, 2–5 cm. longi, nudi, accumbenti-villosi; sepala 4, patentia, obovata v. oblongo-obovata, apice rotundata, basi sensim cuneata, circiter 1.5 cm. longa et 7–10 mm. lata; stamina 2–3-seriata, filamentis 4–6 mm. longis complanatis linearibus quam antherae angustioribus

[1] To this section belongs also the following species not collected during the Arnold Arboretum Expeditions:

Clematis fasciculiflora Franchet, *Pl. Delavay.* I. 5 (1889). — Finet & Gagnepain in *Bull. Soc. Bot. France*, L. 523 (1903); *Contrib. Fl. As. Or.* I. 8 (1905).

Western Szech'uan: without exact locality, alt. 2000 m., September 1903 (Veitch Exped. No. 3127). Yunnan: Mengtze, alt. 1600–1800 m., *A. Henry* (Nos. 10114, 13627); Szemao, alt. 1600 m., *A. Henry* (No. 10114[a]): Yuanchiang, alt. 1600 m., *A. Henry* (No. 11575).

glabris, antheris anguste oblongis pallidis 1.5–2 mm. longis glabris obtusis, loculis marginalibus; pistilla stamina paullo superantia, ovario ovoideo complanato glabro, stylo 5–6 mm. longo piloso, stigmate recurvo glabro. Achaenia circiter 10, brunnea, ovoidea, circiter 6 mm. longa et 3 mm. lata, glabra in stylum persistentem pilis longis plumosum curvatum 1.5–2 cm. longum attenuata.

Western Szech'uan: west of Kuan Hsien, Pan-lan-shan, thickets, alt. 4000–4300 m., June 24, 1908 (No. **2480**, type); Min Valley near Mao-chou, alt. 2300 m., September 1910 (No. **4045**); vicinity of Tachien-lu, thickets, alt. 2600 m., September 1910 (No. **4345**).

Western Kansu: Min-chou, alt. 2600 m., 1911, and Choni district, alt. 2600–3000 m., 1911, *W. Purdom*.

A pretty species closely related to *C. montana* Buchanan-Hamilton from which it is readily distinguished by its small, pinnate leaves. Though rather widely distributed this new species is nowhere common.

Clematis montana Buchanan-Hamilton apud De Candolle, *Syst.* I. 164 (1818); *Prodr.* I. 9 (1824). — Wallich *Pl. As. Rar.* III. t. 217 (1832). — Sweet *Brit. Fl. Gard.* ser. 2, II. t. 253 (1835). — Lindley in *Bot. Reg.* XXVI. t. 53 (1840). — *Rev. Hort.* 1856, 161, f. 43. — Hooker f. & Thomson in Hooker f., *Fl. Brit. Ind.* I. 2 (1872). — Lavallée, *Clem.* t. XXII (1884). — Kuntze in *Verh. Bot. Ver. Brandenb.* XXVI. 141 (*Monog. Clem.*) (1885). — Franchet in *Nouv. Arch. Mus. Paris*, sér. 2. VIII. 184 (*Pl. David.* II. 2) (1885–86); *Pl. Delavay.* I. 5 (1889). — Pritzel in *Bot. Jahrb.* XXIX. 333 (1900). — Finet & Gagnepain in *Bull. Soc. Bot. France*, L. 524 (1903); *Contrib. Fl. As. Or.* I. 9 (1905).

Clematis anemoniflora D. Don, *Prodr. Fl. Nepal.* 192 (1825).
Clematis Punduana Wallich, *Cat.* No. 4682 (nomen nudum) (1828).
Anemone curta Wallich, *Cat.* No. 4690 (nomen nudum) (1828).
Clematis montana, δ. *normalis* Kuntze in *Verh. Bot. Ver. Brandenb.* XXVI. 141 (*Monog. Clem.*) (1885).
Clematis Kuntziana Léveillé & Vaniot in *Bull. Acad. Intern. Géog. Bot.* XI. 171 (1902).

Western Hupeh: Fang Hsien, thickets, alt. 2300–2600 m., August 1907 (No. **2464**; climber 3–5 m., flowers white); without locality, *A. Henry* (No. 6887). Western Szech'uan: Ching-chi Hsien, Ta-hsiang-ling, thickets, alt. 1600–2000 m., May 1908 (No. **2460**; climber 3 m., flowers white); west of Kuan Hsien, Pan-lan-shan, margins of woods, alt. 2300–3000 m., October 1910 (No. **4145**; climber 3–6 m.).

This variable species is abundant on the mountains of central and western China. Of the specimens we have referred to the typical form that from Szech'uan has small and often entire leaflets. The varieties *rubens* Wilson and *Wilsonii* Sprague show a greater divergence from the type than any of the Himalayan specimens we have seen.

Clematis montana, var. **grandiflora** Hooker in *Bot. Mag.* LXX. t. 4061 (1844).

Clematis montana, δ. *normalis*, 7. *anemoniflora* Kuntze in *Verh. Bot. Ver. Brandenb.* XXVI. 141 (*Monog. Clem.*) (1885).

Western Szech'uan: west and near Wên-ch'uan Hsien, thickets, alt. 2000–2800 m., July 1908 (No. **2462**; climber 4–5 m., flowers white); Mt. Omei, June 1904 (Veitch Exped. No. 4693); vicinity of Tachien-lu, alt. 3000–4500 m., *A. E. Pratt* (No. 125).

This Chinese form is very handsome.

Clematis montana, var. **rubens** Wilson in *Flora & Sylva*, III. 252, fig. (1905).—Jouin in *Mitt. Deutsch. Dendr. Ges.* XVI. 257 (1907). — Morel in *Rev. Hort.* 1909, 35, fig. 10, t.

? Clematis montana, δ. *normalis*, 10. *rubens* Kuntze in *Verh. Bot. Ver. Brandenb.* XXVI. 142 (*Monog. Clem.*) (1885).

Western Hupeh: north and south of Ichang, thickets, alt. 1300–2300 m., May and October 1907 (No. **587**, in part; climber 2–4 m., flowers rose-pink); Changyang Hsien, alt. 1300–1600 m., June 1907 (No. **587**, in part; flowers rose-pink); Hsing-shan Hsien, thickets, alt. 1300–2300 m., May 25, 1907 (No. **587**, in part; climber 2–4 m., flowers rose-pink); Fang Hsien, thickets and rocky places, alt. 2000–2600 m., May 27, 1907 (No. **2465**; climber 2–3 m., flowers white with rose-pink reverse); without locality, May and June 1900 (Veitch Exped. Nos. 633, 889); without locality, *A. Henry* (Nos. 5437, 5437ª). Western Szech'uan: west of Kuan Hsien, Niu-tou-shan, thickets, alt. 2600–3000 m., June 20, 1908 (No. **2463**; climber 4 m., flowers white with rose-pink reverse); Chiu-ting-shan, alt. 1600 m., May 22, 1908 (No. **2466**; climber 4 m., flowers rose-pink).

The foliage of this variety is very dark coloured and readily distinguishes the plant when out of flower. As Sprague (*Bot. Mag.* sub t. 8365) has pointed out, there is considerable doubt as to this Chinese plant being the same as the Indian plant to which Kuntze applied his name *rubens*, basing it upon a statement of Hooker & Thomson. By the Chinese in Hupeh this plant is called Ta-huai-t'ung.

Clematis montana, var. **Wilsonii** Sprague in *Bot. Mag.* CXXXVII. t. 8365 (1910).—*Horticulture*, XI. 367, fig. (1910).

Clematis repens Veitch, *Novelties for 1908–1909*, 4, fig. (non Finet & Gagnepain) (1908). — De Corte in *Rev. Hort. Belg.* XXXV. 108, t. (1909).

Hupeh: "Kian-scian," alt. 2000 m., September 1907, *C. Silvestri* (No. 631). Western Szech'uan: Mupin, thickets, alt. 2000–2600 m., June and October 1908 (No. 868[a]; climber 3 m., flowers white); Wa-shan, thickets, alt. 2000–2300 m., November 1908 (No. **1303**; climber 4–6 m.); Tachien-lu, woodlands, alt. 3000–3600 m., October 1910 (No. **4318**; climber 5–8 m.); west and near Wên-ch'uan Hsien, thickets, alt. 2300–3000 m., October 1910 (No. **4110**; large climber 6 m.); without precise locality, October 1904 (Veitch Exped. No. 3114[a]). Yunnan: mountains north of Mengtze, alt. 2300 m., *A. Henry* (No. 10748).

This most distinct variety is the commonest form in western Szech'uan.

Clematis montana, var. **Wilsonii**, f. **platysepala** Rehder & Wilson, n. forma.

A varietate *Wilsonii* recedit sepalis late obovatis apice rotundatis v. truncatis.

Western Szech'uan: Wa-shan, thickets, alt., 2000–2600 m., June 1908 (No. **2461**, type; climber 3–4 m., flowers white); west and near Wên-ch'uan Hsien, alt. 1600–2800 m., July and October 1908 (No. **1003**; climber 4–5 m., flowers white).

This form is distinguished by its broadly obovate, rounded or truncate sepals; the flowers are very round in shape and produced at the same time as the leaves.

Clematis Spooneri Rehder & Wilson, n. sp.

Clematis montana, var. *sericea* Franchet apud Finet & Gagnepain in *Bull. Soc. Bot. France*, L. 525 (1903); *Contrib. Fl. As. Or.* I. 10 (1905).

Frutex scandens, 3–6-metralis ramis teretibus; ramuli hornotini dense breviter villosi, annotini glabrescentes, castaneo-brunnei, vetustiores cinereo-brunnei; gemmae oblongo-ovatae, densissime villosae. Folia decidua, 3-foliolata, foliola ovata v. ovalia, rarius elliptica, acuta v. breviter acuminata, basi rotundata v. late, rarius angustius cuneata, plerumque supra medium utrinque dente unico late ovato mucronato instituta, rarius utrinque 2–4-dentata, 2.5–8 cm. longa et 2–4.5 cm. lata, utrinque sericea, subtus densius indumento initio flavo-nitente, maturitate chartacea, firma, costa et nervis supra impressis subtus elevatis, folia lateralia breviter petiolulata paullo minora quam folium terminale longius petiolulatum petiolo

0.4–1 cm. longo, plerumque basi cuneatum; petioli villosi, robusti, 3.5–8.5 cm. longi, ea turionum cirrhosi. Flores solitarii v. bini, e gemmis perulatis in axillis ramulorum anni praeteriti simul cum foliis orientes, albi, 6–8.5 cm. diam.; pedicelli teretes, robusti, 8–18 cm. longi, dense villosi; sepala 4, obovata v. fere orbicularia, 3–4 cm. longa et 2–3.5 cm. lata, apice emarginata v. mucronata, extus dense flavido-villosa, marginem versus glabrescentia; stamina glabra, stylis paullo longiora, filamentis brunneis compressis linearibus 1–1.5 cm. longis, antheris pallidis lineari-oblongis 3–4 mm. longis. Achaenia numerosa, ovoidea, compressa, 4–5 mm. longa, brunnea, dense pilosa, stipitata, apice in stylum persistentem longe plumosum circiter 3 cm. longum attenuata.

Western Szech'uan: Mupin, alt. 2300–2600 m., June and August 1908 (No. **868**, type); same locality, alt. 1600–2000 m., October 1908 (No. **868**[b]); same locality, thickets, alt. 2600–3000 m., October 1910 (No. **4373**); vicinity of Tachien-lu, thickets, alt. 2000–2600 m., June and October 1908 (No. **1331**); without precise locality, alt. 2600 m., July 1903 (Veitch Exped. No. 3114).

The relatively thick leaves densely covered with yellowish silky hairs, the sericeous flowers and particularly the densely pilose achenes readily distinguish this species from *C. montana* Buchanan-Hamilton and all its numerous varieties and forms. It appears to us more closely allied to *C. chrysocoma* Franchet in which, however, the flowers are pink and produced on the shoots of the current season. The flowers of *C. Spooneri* are of much substance and very beautiful. The plant grows naturally in rocky places fully exposed to the sun and is very floriferous. The varietal name *sericea* applied by Franchet to this plant cannot be used specifically as there is a *C. sericea* Humboldt, Bonpland & Kunth; there is also another American species of the same name, *C. sericea* Michaux.[1]

In raising this plant to specific rank we have thought it advisable to draw up a complete description since the distinguishing characters given by Franchet are very brief.

Ser. Vitalbae Prantl.

Clematis Fargesii Franchet in *Jour. de Bot.* VIII. 273 (1894). — Finet & Gagnepain in *Bull. Soc. Bot. France*, L. 523 (1903); *Contrib. Fl. As. Or.* I. 8 (1905).

Western Szech'uan: west of Kuan Hsien, Pan-lan-shan, thickets, alt. 2600–3000 m., October 1910 (No. **4144**; climber 3–6 m.). Western Kansu: Tow river, alt. 3000 m., 1911, *W. Purdom*.

[1] Named for my friend, Herman Spooner, who assisted in the distribution of my early collections and to whom I am indebted for valued services on many occasions. — E. H. W.

This species differs from the other species of this group in the inflorescence which is reduced to one or three large flowers; it thus forms a transition to the preceding group, but the flowers, even when solitary, are always borne on distinct peduncles in the axils of the leaves of young branches.

Clematis Fargesii, var. **Souliei** Finet & Gagnepain in *Bull. Soc. Bot. France*, L. 523 (1903); *Contrib. Fl. As. Or.* I. 8 (1905).

Clematis Souliei Franchet *mss.* ex Finet & Gagnepain, l. c. (quasi synon.).

Western Szech'uan: north-east of Tachien-lu, Ta-p'ao-shan, forest glades, alt. 3300 m., July 4, 1908 (No. **2467**; flowers pure white); without precise locality, woods, alt. 3300 m., June 1904 (Veitch Exped. No. 3117). Shensi: Tai-pei-shan, 1910, *W. Purdom* (No. 540).

This very handsome plant is not common and is always found in woodlands. In addition to the characters mentioned by Franchet it seems to differ from the type in the often narrower leaflets broadly cuneate at the base and glabrescent beneath.

Clematis apiifolia De Candolle, *Syst.* I. 149 (1818); *Prodr.* I. 6 (1824). — Hooker & Arnott, *Bot. Voy. Beechey*, 258 (1841). — Maximowicz in *Bull. Acad. Sci. St. Pétersbourg*, XXII. 218 (1876); in *Mél. Biol.* IX. 593 (1876). — Kuntze in *Verh. Bot. Ver. Brandenb.* XXVI. 151 (*Monog. Clem.*) (1885). — Hemsley in *Jour. Linn. Soc.* XXIII. 2 (1886). — Finet & Gagnepain in *Bull. Soc. Bot. France*, L. 531 (1903); *Contrib. Fl. As. Or.* I. 16 (1905).

Clematis virginiana Loureiro *Fl. Cochin.* 345 (non Linnaeus) (1790).

We have seen no specimens from western China referable to the Japanese form. This species has been placed by Prantl and Schneider into the subsection *Rectae* but it seems to us much more closely related to *C. grata* Wallich than to any other species.

Clematis apiifolia, var. **obtusidentata** Rehder & Wilson, n. var.

Frutex scandens, 3–4-metralis ramulis hornotinis pubescentibus sulcatis. Folio longe petiolata, 3-foliolata, foliola late ovata v. ovata, acuminata, basi truncata v. subcordata, rarius late cuneata, grosse dentata dentibus late ovatis v. fere rotundatis obtusis et plerumque mucronulatis, 5–9 cm. longa et 4–7.5 cm. lata, supra sparse, subtus densius adpresse pilosa; petiolulus terminalis 2–4 cm. longus, laterales 1–2.5 cm. longi. Achaenia elliptico-ovata, breviter subaccumbenti-villosa, 4 mm. longa. Ceterum ut in typo.

Western Hupeh: Patung Hsien, thickets, alt. 1–2000 m., August and October 1907 (No. **427**[b], type); Changlo Hsien, thickets, alt.

1600–2300 m., June and August, 1907 (No. 1233[a]); Ichang, *A. Henry* (No. 1556).

The broader and larger, more pubescent leaflets usually truncate or subcordate at the base, less deeply incised, with obtuse and broader teeth generally distinguish this variety from the type. The specimens before us strongly suggest that they belong to *C. grata* Wallich, but we have referred them to *C. apiifolia* D. C., chiefly on account of their 3-foliolate leaves. The *Vitalba* group is extremely puzzling and none of the species have clearly defined limits.

No. 1233[a] has the under surface of the leaves densely clothed with soft, gray villose pubescence.

Clematis grata Wallich *Pl. As. Rar.* I. 83, t. 98 (1830). — Hooker f. & Thomson in Hooker f., *Fl. Brit. Ind.* I. 3 (1875). — Hemsley in *Jour. Linn. Soc.* XXIII. 3 (1886). — Pampanini in *Nouv. Giorn. Bot. Ital.* n. ser. XVII. 269 (1910).

Clematis Vitalba, ϵ. *grata* Kuntze in *Verh. Bot. Ver. Brandenb.* XXVI. 100 (*Monog. Clem.*) (1885).

Clematis Vitalba, γ. *Cl. grata* Finet & Gagnepain in *Bull. Soc. Bot. France*, L. 532 (pro parte) (1903); *Contrib. Pl. As. Or.* I. 17 (pro parte) (1905).

The typical form as represented by Wallich's figure quoted above, apparently does not occur in China.

Clematis grata, var. **lobulata** Rehder & Wilson, n. var.

Clematis Vitalba, γ. *Cl. grata* Finet & Gagnepain in *Bull. Soc. Bot. France* L. 532 (pro parte) (1903); *Contrib. Fl. As. Or.* I. 17 (pro parte) (1905).

A typo recedit foliolis saepe 3-lobatis v. 3-fidis magis acuminatis basi rotundatis v. cordatis utrinque dense molliter accumbenti-villosis grossius et paucius dentatis dentibus utrinque plerumque 1–4 late ovatis rotundatis et mucronulatis rarius acutis.

Western Hupeh: vicinity of Ichang, *A. Henry* (No. 4330, type); Patung Hsien, thickets and stony places, alt. 1000–1600 m., August and December 1907 (No. 665); Ichang and immediate neighbourhood, *A. Henry* (No. 2721). Szech'uan: without locality, *A. Henry* (No. 7230). Formosa: 1864, *Richard Oldham;* South Cape, *A. Henry* (Nos. 904, 904[a]).

This is a fairly common low-level plant in western Hupeh being usually found in stony places by the side of streams or roads fully exposed to the sun. It differs from Wallich's figure in its more acuminate, often trifid or sometimes 3-foliolate leaflets, with fewer, much coarser teeth. From *C. grata*, var. *grandidentata* Rehder & Wilson it is readily distinguished by its smaller, often trifid or 3-foliolate, more acuminate leaflets, usually 5–6 cm. long and 3–5 cm. broad and generally cordate at the base, by the more numerous flowered cymes and small, green, leaf-like bracts. It is also a more hairy and much less ornamental plant.

Clematis grata, var. **grandidentata** Rehder & Wilson, n. var.

Clematis grata Pritzel in *Bot. Jahrb.* XXIX. 333 (1900).
Clematis grata, f. *glabrata* Pritzel, l. c. (nomen nudum).
Clematis Vitalba, γ. *Cl. grata* Finet & Gagnepain in *Bull. Soc. Bot. France*, L. 532 (1903); *Contrib. Fl. As. Or.* I. 17 (pro parte) (1905).

Frutex scandens, 3–10-metralis, ramulis hornotinis pubescentibus sulcatis. Foliola 3–5, lateralia ovata, 5–9 cm. longa et 3–6, plerumque 7 cm. lata, acuminata, basi rotundata rarius subcordata v. late cuneata, inciso-dentata infra medium plerumque integra dentibus utrinque plerumque 5–6 inaequalibus late triangulari-ovatis acutis et mucronulatis patentibus et apice interdum leviter recurvo sinubus saepe fere angulum rectum formantibus, petiolulo 0.5–11 cm. longo breviter villoso, folium terminale late ovatum v. obovatum, saepe trilobum, 5–9 cm. longum et 4–8 cm. latum, petiolulo ad 4 cm. longo, foliola supra sparse adpresse pilosa, maturitate glabrescentia, subtus breviter adpresse sericeo-pilosa, densius ad nervos, interdum glabrescentia. Flores in cymis 3-floris axillaribus ramulorum apicem versus paniculas aphyllas formantibus. Ceterum ut in typo.

Western Hupeh: Patung Hsien, thickets, alt. 1000–1600 m., May and August 1907 (No. **110**, type); Hsing-shan Hsien, thickets, alt. 1000–1600 m., May and September 1907 (No. **338**); Fang Hsien, thickets and margins of woods, alt. 1300–1600 m., May and October 1907 (Nos. 427, 427[a]); without locality, June and July 1900 (Veitch Exped. Nos. 974, 1308[d]); without locality, *A. Henry* (Nos. 2015, 5647[a], 5578); "Ma-pan-scian," alt. 1000 m., May 1901, *C. Silvestri* (No. 630). Western Szech'uan: Wa-shan, thickets, alt. 1600–2300 m., June and October 1908 (No. **1100**); west and near Wên-ch'uan Hsien, woodlands, alt. 1600–2300 m., July and November 1908 (No. **1233**); Mt. Omei, July 1904 (Veitch Exped. No. 4697); vicinity of Tachien-lu, alt. 3000–4500 m., *A. E. Pratt* (No. 78); without locality, *A. Henry* (Nos. 5578, 5647, 7267); without locality, *A. von Rosthorn* (Nos. 2023, 2538). Shensi: north-west of Hancheng Hsien, 1910, *W. Purdom* (No. 381); Tai-pei-shan, 1910, *W. Purdom* (No. 1).

The large, coarsely toothed leaflets readily distinguish this variety from the type. It is a mountain plant abundant in the thickets, margins of woods and copses throughout central and western China. Under the name Mu-t'ung this plant is valued in Chinese medicine as an emetic, purgative and vesicant. A picture of it will be found under No. 0136 of the collection of Wilson's photographs.

Clematis Gouriana Roxburgh apud De Candolle, *Syst.* I. 138 (1818); *Prodr.* I. 3 (1824). — Roxburgh, *Fl. Ind.* II. 670 (1832). — Wight, *Icon.* III. fig. 933, 934 (1843–1850). — Hooker f. & Thomson in Hooker f., *Fl. Brit. Ind.* I. 4 (1875). — Maximowicz in *Act. Hort. Petrop.* XI. 9 (1890). — Pritzel in *Bot. Jahrb.* XXIX. 332 (1900).

Clematis Gouriana Roxburgh, *Cat. Hort. Beng.* 43 (nomen nudum) (1814).
Clematis cana Wallich, *Cat.* No. 4672 (nomen nudum) (1828).
Clematis Vitalba, α. *Gauriana* [*sic*] Kuntze in *Verh. Bot. Ver. Brandenb.* XXVI. 100 (*Monog. Clem.*) (1885).
Clematis substipulata Kuntze, l. c. 147 (1885).
Clematis Vitalba, β. *Cl. Gouriana* Finet & Gagnepain in *Bull. Soc. Bot. France*, L. 532 (1903); *Contrib. Fl. As. Or.* I. 17 (1905).

Western Szech'uan: west and near Wên-ch'uan Hsien, thickets, alt. 1000–1300 m., July and November 1908 (No. **1229**; climber 3–6 m., flowers white); Mt. Omei, September 1904 (Veitch Exped. No. 4694). Western Hupeh: without locality, July and September 1900 (Veitch Exped. Nos. 1706, 2397); without locality, *A. Henry* (Nos. 2946, 4329); vicinity of Ichang, *A. Henry* (No. 3090). Shensi: Tai-pei-shan, 1910, *W. Purdom*. Yunnan: Mengtze, alt. 1500–1600 m., *A. Henry* (Nos. 9104, 10148); Mi-lê district, *A. Henry* (No. 10306); Szemao, alt. 2000 m., *A. Henry* (No. 13432).

This rather variable species is widely distributed in China and is very abundant throughout the warmer parts of the Empire. The flowers are small, borne in very large axillary and terminal panicles. The leaves vary considerably in size and are either glabrous or puberulous, entire or more or less toothed. In No. 1229 the leaves are more coarsely toothed than usual.

The perulate character on which Kuntze based his *C. substipulata*, is common to *C. Gouriana* and its varieties, and can always be found on any plant of this species, and especially on the stronger shoots.

Clematis Gouriana, var. **Finetii** Rehder & Wilson, n. var.

A typo recedit achaeniis glabris, atrobrunneis, orbiculari-ovoideis compressis.

Clematis Vitalba, β. *Cl. Gouriana*, *forma substipulata* Finet & Gagnepain in *Bull. Soc. Bot. France*, L. 532 (pro parte, non *C. substipulata* O. Kuntze) (1903); *Contrib. Fl. As. Or.* I. 17 (1905).

Western Hupeh: Hsing-shan Hsien, thickets, alt. 600–1300 m., July and December 1907 (No. **672**, type; climber 3–5 m.); north and south of Ichang, alt. 600–1300 m., July and December 1907 (No. **672**[a]); without locality, *A. Henry* (No. 6461).

In the Gray Herbarium there is a specimen collected in Concan, by Stocks, which is presumably the same as that on which Kuntze founded his *C. substipulata*

var. *acuta*. The branches are perulate and the achenes villose. The latter character we assume to be normal in Kuntze's species, since he says nothing to the contrary.

Clematis brevicaudata De Candolle, *Syst.* I. 138 (1818); *Prodr.* I. 3 (1824). — Maximowicz in *Bull. Acad. Sci. St. Pétersbourg*, XXII. 216 (1876); in *Mél. Biol.* IX. 592 (1876); in *Act. Hort. Petrop.* XI. 8 (1890). — Franchet in *Nouv. Arch. Mus. Paris*, sér. 2, V. 166 (*Pl. David.* I. 14) (1882). — Hemsley in *Jour. Linn. Soc.* XXIII. 3 (1886). — Pritzel in *Bot. Jahrb.* XXIX. 332 (1900). — Finet & Gagnepain in *Bull. Soc. Bot. France*, L. 533 (1903); *Contrib. Fl. As. Or.* I. 18 (1905).

Clematis Vitalba, γ. *brevicaudata* Kuntze in *Verh. Bot. Ver. Brandenb.* XXVI. 100 (*Monog. Clem.*) (1885).

Western Hupeh: without locality, September 1900 (Veitch Exped. No. 1723); vicinity of Ichang, *A. Henry* (Nos. 4341, 4361).

This species is widely distributed and is most polymorphic in character. The varieties described by us are strikingly distinct from the type, yet we cannot separate them specifically. The Hupeh material referred to the type differs from a specimen collected at Peking (Herb. Hance, No. 12703) in having more slender stamens with larger anthers, and darker colored plumes to the achenes. We are disposed to regard the Japanese *C. Pierotii* Miquel as a variety of this species. We strongly suspect, too, that some of the specimens referred by Finet & Gagnepain to *C. parviloba*, var. *glabrescens* really belong to *C. brevicaudata*.

Clematis brevicaudata, var. **tenuisepala** Maximowicz in *Act. Hort. Petrop.* XI. 9 (1890).

Western Szech'uan: Tu-ti-liang-shan, near Lungan Fu, thickets, alt. 2000 m., August 1910 (No. **4547**; climber 3–4 m., flowers white).

Our specimen agrees with Maximowicz's description, except that the sepals are more pubescent.

Clematis brevicaudata, var. **lissocarpa** Rehder & Wilson, n. var.

Frutex scandens, 2–4-metralis ramulis glabris sulcatis. Folia majora ad 25 cm. longa, in sicco nigrescentia, bipinnata v. bipinnatisecta segmentis primariis 5–7, inferioribus longe petiolulatis trifoliatis v. trisectis, superioribus simplicibus, folia ramulorum floriferorum saepe pinnata, foliolis 3–7; foliola ovata, rarius ovato-lanceolata, acuminata, basi rotundata v. subcordata, rarius late cuneata, sparse supra medium serrata, rarius integra, 3–7 cm. longa et 2–3 cm. lata, supra ad venas sparse pubescentia, subtus glabra; petioluli primarii 1–3 cm. longi, rarius longiores, secundarii ad 1 cm. longi, terminalis longior; petioli 5–7 cm. longi. Inflorescentiae axillares et terminales, plerumque folio longiores, late paniculatae v. fere corymbosae e cymis trichoto-

mis compositae; pedicelli tenues, 1.5–2 cm. longi, infra medium bracteis 2 parvis lanceolatis v. interdum subulatis instituti; flores circiter 2 cm. diam., albi; alabastra nutantia, obovoidea, apice obtusa; stamina glabra, stylis longiora, antheris oblongo-ovoideis, 1 mm. longis. Achaenia glabra.

Kiangsi: Kuling, thickets, alt. 1300 m., July 31, 1907 (No. **1552**, type); same locality, alt. 1000–1300 m., July 1907 (Nos. **1551**, **1553**). Western Hupeh: without locality, *A. Henry* (No. 6462).

This is a vigorous growing plant distinguished from the type chiefly by its glabrous achenes and larger leaflets. It is more closely allied to the variety *subsericea* Rehder & Wilson which has much smaller, pinnate leaves pubescent below, the inflorescence less than half the length of the leaves and without leafy bracts. Henry's specimen differs in having coarsely toothed leaves sparsely pubescent below and in these characters closely resembles the typical *C. brevicaudata* but in its glabrous achenes and other respects it agrees closely with this variety.

Clematis brevicaudata, var. **subsericea** Rehder & Wilson, n. var.

Frutex scandens, 2–4-metralis, ramulis hornotinis initio puberulis. Folia pinnata, in sicco nigrescentia; foliola ovata v. ovato-elliptica, inferiora 3-loba v. 3-partita, acuminata, basi rotundata v. subcordata, integra v. utrinque dentibus parvis 1–3 mucronulatis, 3–4.5 cm. longa et 1.5–2.5 cm. lata, 3-loba ad 4 cm. lata, supra glabrescentia, subtus breviter sericeo-pilosa; petioluli 5–10 mm. longi; petioli 2–2.5 cm. longi. Inflorescentia axillaris, corymbosa, folio brevior, pluriflora, pluries trichotoma; pedicelli 1.5–2 cm. longi, fere glabri; flores 2–2.5 cm. diam., albi, fragrantes; stamina glabra, exteriora stylos superantia, interiora aequantia, filamentis complanatis, antheris ovoideis. Achaenia glabra.

Western Szech'uan: Yachou Fu, roadsides, alt. 300–600 m., September 1908 (No. **2479**).

The larger, more fleshy, entire or sparsely toothed leaflets densely pubescent below, larger more numerous flowers, larger anthers and glabrous achenes sufficiently distinguish this variety from the type.

Clematis brevicaudata, var. **filipes** Rehder & Wilson, n. var.

Ramuli glabri, leviter sulcati. Folia tenuia, in sicco brunnescentia, pinnatim 5–7-foliolata; foliola ovata v. late ovato-lanceolata, acuminata, basi rotundata v. truncata, integra, sed segmenta inferiora interdum profunde 3-lobata, 4–6 cm. longa et 2–3 cm. lata, supra ad venas sparse pubescentia, subtus glabra; petioluli graciles, 1–2.5 cm. longi; petioli 4.5–7 cm. longi, glabra. Inflorescentia axillaris, longe pedunculata, cymosa, 7–9-flora, folio brevior; pedicelli tenues, 2–3.5 cm. longi, infra medium bracteis 2 minutis subulatis instituti; alabastra obovoidea, obtusa; sepala anguste oblonga, 6–8 cm. longa; stamina stylis longiora, filamentis filiformibus, antheris ovoideis vix 1 mm. longis. Achaenia villosa.

Western Hupeh: Nanto and mountains to the northward, *A. Henry* (No. 4583, type).

A distinct variety in some respects intermediate between var. *tenuisepala* Maximowicz and var. *lissocarpa* Rehder & Wilson having the narrow sepals and villose achenes of the former and the glabrous character of the latter. From both of these and from other forms of this variable species it is distinguished by the characters described above. Though the leaves are thin in a dried state we suspect that they are rather fleshy on living plants. In foliage it resembles somewhat *C. chinensis* Retzius, which is easily distinguished, however, by its linear-oblong anthers, short filaments, pointed buds, paniculate inflorescence and firmer, usually narrower leaflets, drying nearly black.

Ser. ORIENTALES Prantl.

Clematis Henryi Oliver in *Hooker's Icon.* XIX. t. 1819 (1889). — Finet & Gagnepain in *Bull. Soc. Bot. France*, L. 540 (1903); *Contrib. Fl. As. Or.* I. 25 (1905).

Western Hupeh: Ichang, glens, alt. 30–300 m., January 1909 (No. **2485**; climber 2–4 m., flowers white); Patung Hsien, ravines, alt. 1000 m., April 1907 (No. **2486**; climber 3 m.); without locality, March 31, 1900 (Veitch Exped. No. 117); vicinity of Ichang, *A. Henry* (Nos. 3280, 3280[a], 3280[b]). Yunnan: Mengtze, forests, alt. 2000 m., *A. Henry* (No. 9864); Szemao, mountains west, alt. 1600 m., *A. Henry* (No. 9864[a]).

A winter blooming species nowhere common; in Hupeh it is confined to low-level glens, ravines and rocky places.

Clematis glauca Willdenow, *Berl. Baumz.* 65, t. 4, fig. 1 (1796); *Sp.* II. 1290 (1799). — De Candolle, *Syst.* I. 36 (1818); *Prodr.* I. 3 (1824). — Watson, *Dendr. Brit.* I. t. 73 (1825). — Ledebour, *Fl. Ross.* I. 3 (1842). — Koch, *Dendr.* I. 423 (1869). — Koehne, *Deutsch. Dendr.* 155 (1893). — Schneider, *Ill. Handb. Laubholzk*, I. 293, fig. 191 b–b[1] (1904).

Meclatis sibirica Spach, *Hist. Vég.* VII. 273 (1839).
Clematis orientalis, var. *obtusifolia* Hooker f. & Thomson in Hooker f., *Fl. Brit. Ind.* I. 5 (1875).
Clematis orientalis, var. *glauca* Maximowicz, *Fl. Tangut.* 3 (1889). — Dippel, *Handb. Laubholzk.* III. 170 (1893).
Clematis orientalis Finet & Gagnepain in *Bull. Soc. Bot. France*, L. 540 (1903); *Contrib. Fl. As. Or.* I. 25 (non Linnaeus) (1905).

We have seen no specimens of the type from China, but according to Maximowicz it occurs in Kansu and northern China. It can always be easily distinguished from *P. orientalis* L. by the sepals being glabrous except at the woolly margins.

Clematis glauca, var. **akebioides** Rehder & Wilson, n. comb.

Clematis orientalis, var. *akebioides* Maximowicz in *Act. Hort. Petrop.* XI. 6 (1890).

Western Szech'uan: vicinity of Sungpan, rocky places, alt. 2600–3600 m., August 1910 (No. 4548; climber 2–3 m., flowers bronzy-yellow); without precise localities, dry, hot valleys, alt. 2000–3100 m., August 1903, September 1904 (Veitch Exped. Nos. 3132, 3132ª, 3131, 3131ª, seed No. 1700). Western Kansu: Tow river, alt. 3000 m., and Lao-chou district, alt. 3000 m., 1911, *W. Purdom*.

Very abundant in the upper reaches of the Min Valley especially in the neighbourhood of Sungpan Ting.

A picture of this plant will be found under No. 0320 of Wilson's collection of photographs.

Clematis tangutica Korshinsky in *Bull. Acad. Sci. St. Pétersbourg*, sér. 5, IX. 399 (1898) quoad synonymum, exclusa descriptione. — André in *Rev. Hort.* 1902, 528, t. — Schneider, *Ill. Handb. Laubholzk.* I. 294, fig. 185 w-z, 191 t (1904).

Clematis orientalis, var. *tangutica* Maximowicz, *Fl. Tangut.* 3 (1889).
Clematis eriopoda Koehne, *Deutsch. Dendr.* 155 (non Maximowicz) (1893).

The type does not seem to occur in western China.

The plant from the Pamirs which Korshinsky describes as *C. tangutica* (Maxim.) is apparently not Maximowicz's plant, but belongs probably to the true *C. orientalis* Linnaeus. Korshinsky describes his plant as having "sepala ovata, acuta, intus pubescentia . . . flores 3–4 cm. in diamatro," while Maximowicz's plant has acuminate sepals, glabrous inside and flowers about 7 cm. in diameter. From the following variety the plant from the Pamirs is easily distinguished by its sepals being pubescent on the inside.

Clematis tangutica, var. **obtusiuscula** Rehder & Wilson, n. var.

A typo recedit ramulis junioribus, petiolis, pedunculis paullo villosioribus, foliolis minoribus plerumque ovato-lanceolatis sparsius inciso-serratis, sepalis oblonga-ellipticis obtusiusculis, saepe apiculatis, 2.5–3 cm. longis. Flores solitorii, pedunculo 8–12 cm. longo recto.

Western Szech'uan: north-east of Tachien-lu, Ta-p'ao-shan, thickets, alt. 2600–3300 m., July 1908 (No. 2487, type; climber 3–6 m., flowers yellow); vicinity of Tachien-lu, *A. E. Pratt* (No. 237). Western Kansu: Choni and Tao-chow, alt. 3000 m., 1911, *W. Purdom*.

In its smaller and more sparingly serrate leaflets and in the shorter, obtusish or acutish sepals this variety differs chiefly from the type which has the sepals long-acuminate and up to 3.5 cm. in length. The plant figured in *Rev. Hort.* agrees in the obtuse sepals with this variety, but they are described as 3–4 cm. long; specimens of cultivated plants before us have the sepals long-acuminate, as described by Maximowicz. A picture of this plant will be found under No. 0290 of Wilson's collection of photographs.

LARDIZABALACEAE.

Determined by ALFRED REHDER and E. H. WILSON.

DECAISNEA Hook. f. & Thoms.

Decaisnea Fargesii Franchet in *Jour. de Bot.* VI. 234 (1892). — Bois in *Rev. Hort.* 1900, 270, fig. 122–124. — Diels in *Bot. Jahrb.* XXIX. 342 (1900). — Hooker f. in *Bot. Mag.* CXXVIII. t. 7848 (1902). — Schneider, *Ill. Handb. Laubholzk.* II. 912, fig. 571 (1912).

Decaisnea insignis Diels in *Bot. Jahrb.* XXIX. 342 (non Hooker f. & Thomson) (1900); in *Bot. Jahrb.* XXXVI. Beibl. LXXXII. 44 (1905). — Pampanini in *Nuov. Giorn. Bot. Ital.* n. s. XVII. 273 (1910).

Western Hupeh: north and south of Ichang, moist woodlands and thickets, alt. 1000–1600 m., May 10 and October 1907 (No. 330; erect growing bush, 2–5 m. tall, flowers greenish-yellow, fruit deep blue); without locality, *A. Henry* (Nos. 5405, 5405ª). Western Szech'uan: Wa-shan, alt. 1600–2500 m., October 1908 (No. 330ª). Shensi: Tai-pei-shan, alt. 2300–2600 m., 1910, *W. Purdom* (No. 501); "M^te Kian-san," August 4, 1897, *G. Giraldi.*

A very common shrub in moist woods and thickets in western Hupeh and in Szech'uan between 600 and 2600 m. alt. The deep blue fruit contains a white pulp in which are imbedded the numerous flattened jet black seeds. The pulp is edible, but of insipid flavor. The fruits are commonly eaten by monkeys on Mt. Omei and elsewhere in that region.

The under surface of the mature leaves is almost glabrous or is clothed with a short curled pubescence. A colloquial name in Hupeh for this plant is "Mao-erh-tzu."

A picture of this plant will be found under No. 112 of the collection of Wilson's photographs and also in his *Vegetation of Western China*, No. 203.

STAUNTONIA DC.

Stauntonia Duclouxii Gagnepain in *Bull. Soc. Bot. France*, LV. 48 (1908); in *Bull. Mus. Nat. Hist. Paris*, XIV. 69 (1908).

Western Hupeh: Hsing-shan Hsien, ravine, alt. 600 m., only one plant seen, May 10, 1907 (No. 2389; climber 6 m. and more, flowers greenish-yellow, heavily striped with brown, fragrant).

Our specimen, which is male, differs from Gagnepain's description in its shorter (1–2.5 cm. long) petiolules, longer (2.5–5 cm. long) pedicels and in the cuspidate rather than uncinate leaves. In all essential characters, however, it agrees exactly and we have no hesitation in referring it to Gagnepain's species. *Stauntonia Duclouxii* is a handsome climber with large, fragrant and abundant flowers. It is apparently very rare in Hupeh, as we met with one plant only.

Stauntonia sp. nov.?

Western Szech'uan: Hung-ya Hsien, base of Wa-wu-shan, thickets, alt. 1300 m., September 1908 (No. 894).

This is distinct from any species known to us. It seems nearest, however, to *S. Duclouxii* Gagnepain, from which it differs chiefly in its 4–6-foliolate leaves and in the thinner leaflets usually obtuse and mucronate at the apex. Our material consists only of leaves and fruit and is too fragmentary to serve as the type of a new species.

F. Gagnepain in his elaborate paper (Révision des Lardizabalées asiatiques de l'Herbier du Muséum (*Bull. Mus. Nat. Hist. Paris*, XIV. 64–70 [1908]) discourses carefully on the classification of this family, and we agree with him in considering *Stauntonia* and *Holboellia* distinct genera. The confluent filaments of the stamens in *Stauntonia* (with which we unite *Parvatia*) are concomitant with the relatively thin, acuminate sepals except in the case of *S. filamentosa* Griffith; the free filaments in *Holboellia* are concomitant with thick, fleshy, obtuse sepals. We agree with Hemsley (in *Hooker's Icon.* XXIX. sub. t. 2843 (1907)) in uniting Decaisne's *Parvatia* with *Stauntonia* De Candolle. The presence of six nectaries in both male and female flowers in *Parvatia* and their presence in the female and absence in the male flowers in *Stauntonia* seems too slight a character to base generic distinction upon.

HOLBOELLIA Wall.

Holboellia coriacea Diels in *Bot. Jahrb.* XXIX. 342 (1900). — Réaubourg in *Bull. Soc. Bot. France*, LIII. 453 (1906).

Western Hupeh: Patung Hsien, thickets, alt. 600–1300 m., May 1907 (No. **146** in part; climber 3–5 m., male flowers white, female flowers purple); Changlo Hsien, thickets, alt. 600–1300 m., May 20 and October 1907 (No. **146**, in part; climber 3–5 m., male flowers white, female flowers purple, fruit purple); Hsing-shan Hsien, in a ravine, alt. 600–1000 m., May 7, 1907 (No. **2385**; climber 4 m., flowers white); without locality, *A. Henry* (Nos. 5225, 7788).

A common climber in rocky places up to 1300 m. alt. in western Hupeh. It is closely allied to *H. latifolia* Wallich, with which it has been confused by Réaubourg and others. It is readily distinguished, however, from that species by its constantly 3-foliolate, more coriaceous, and less conspicuously veined leaves, by the longer peduncles and longer pedicels to the pistillate inflorescence, by filaments as long or slightly longer than the anthers and by smaller seeds. The undescribed fruit is

purple, oblong, 4.5–6 cm. or more long, about 2 cm. wide, somewhat tuberculate, rounded; seeds apiculate, jet black, compressed, 4–5 mm. high, 5–6 mm. long.

The colloquial name in Hupeh for this and other species is "Pa-yueh-cha." The inner pulp of the fruit of this species is white, watery, rather sweet, but of insipid flavor, and is eaten by the natives.

Stauntonia brevipes Hemsley in *Hooker's Icon.* XXIX. sub t. 2849 (1907) we have not seen, but from the description we suspect that it is merely a state of *H. coriacea* Diels.

Holboellia grandiflora Réaubourg in *Bull. Soc. Bot. France,* LIII. 453 (1906). — Gagnepain in *Bull. Mus. Nat. Hist. Paris,* XIV. 67 (1908).

Western Szech'uan: Ching-chi Hsien, base of Ta-hsiang-ling, on rocks, alt. 1300 m., May 1908 (No. **889**, in part; climber 5–6 m., flowers white, very fleshy, fragrant); Ching-chi Hsien, base of Wa-wu-shan, thickets, alt. 1300–1600 m., September 14, 1908 (No. **889**, in part; climber 6 m., fruit purple, edible); Ching-chi Hsien, on rocks, foot of Ta-hsiang-ling, May 1904 (Veitch Exped. No. 3139).

This handsome species is readily distinguished from all other species by its large (3 cm. long) flowers, and by the very strongly reticulate venation of the leaves, which are broadest above the middle and narrowed to the ends. The fruit is edible, purple, 8–12 cm. long; the flowers very fleshy and delightfully fragrant. It is apparently rare, being known to us from two localities only.

Réaubourg (l. c.) quotes "Hupeh: 1905 Wilson." There is some mistake here; 1905 probably refers to the year the specimens were received in Paris.

Holboellia Fargesii Réaubourg in *Bull. Soc. Bot. France,* LIII. 454 (1906).

Holboellia angustifolia Diels in *Bot. Jahrb.* XXIX, 343 (non Wallich) (1900). — Réaubourg in *Bull. Soc. Bot. France,* sér. 4, VI. 452 (1906).

Holboellia angustifolia? var. *angustissima* Diels in *Bot. Jahrb.* XXIX. 343 (1900).

Stauntonia longipes Hemsley in *Hooker's Icon.* XXIX. t. 2848 (1907).

Holboellia latifolia Gagnepain in *Bull. Mus. Nat. Hist. Paris,* XIV. 67 (pro parte, non Wallich) (1908).

Western Hupeh: Hsing-shan Hsien, woodlands, alt. 1300–2000 m., May 21 and September 1907 (No. **166**; climber 3–6 m., male flowers greenish-white, female flowers purplish, fruit purple); Fang Hsien, woodlands, alt. 1300–2000 m., May 30 and September 1907 (No. **2384**; climber 3–6 m.; flowers greenish-white, fruit purple); same locality, May 26, 1907 (No. **2383**; climber 3–6 m., male flowers white, female flowers dull purple and green); without locality, May 1900 (Veitch Exped. Nos. 648, 648[a]); without locality, *A. Henry* (Nos. 5256, 5256[a]).

This is the common Holboellia of the thickets and margins of woods throughout western Hupeh occurring at higher elevations than *H. coriacea* Diels. From the evidence of abundant material before us and our knowledge of the wild plants we are unable to agree with Gagnepain (*Bull. Mus. Nat. Hist. Paris*, XIV. 67) in referring this plant to *H. latifolia* Wallich or as a variety to that species. We have seen no specimen from central or western China referable to *Holboellia angustifolia* Wallich and apparently it does not occur there. The only specimens of *H. latifolia* Wallich we have seen from China are Henry's Nos. 10527, 10527ª, both collected near Mengtze in Yunnan. We suspect that the *Holboellia latifolia* of Franchet (*Nouv. Arch. Mus. Paris*, sér. 2, VIII. 194 (Pl. *David*. II. 11)); of Diels (*Bot. Jahrb.* XXIX. 343); of Pampanini (*Nuov. Giorn. Bot. Ital.* n. ser. XVII. 273), and of Réaubourg (*Bull. Soc. Bot. France*, LIII. 452) belong to *H. Fargesii* Réaubourg.

Holboellia Fargesii is an extremely variable plant, and Réaubourg's description refers to one form of the species and to a shoot bearing male flowers only. Hemsley's figure (l. c.) represents another form, and every gradation between these two extremes can be found. In the specimens before us the leaflets vary from 3 to 9 in number, from 3.5 cm. to 12 cm. in length excluding the petiolule, and from 1 cm. to 4 cm. in width; the petioles from 2 cm. to 12 cm.; the peduncles with pedicels on male flowers from 2 cm. to 6 cm.; on the female flowers from 4 cm. to 15 cm. All these variations are to be found on the same individual and very often on the same shoot. The flower and its parts, however, are constant as described by Hemsley, except that the female flowers are almost invariably the larger. The fruit which has not been described is purple, oblong, 7–9 cm. long, rounded, tipped with a short point; the seeds somewhat verruculose, jet black, 4–5 mm. high, 5–8 mm. long. This species is undoubtedly closely related to *H. angustifolia* Wallich, which is readily distinguished by its relatively thin leaves with prominent reticulate venation, much shorter peduncles and pedicels, different shaped sepals and by a somewhat different floral structure.

AKEBIA Decne.

Akebia quinata Decaisne in *Arch. Mus. Paris*, I. 195, t. 13 a (1839); in *Ann. Sci. Nat.* sér. 2, XII. 107 (1839). — Siebold, *Fl. Jap.* I. 145, t. 77 (1840?). — Lindley in *Bot. Reg.* XXXIII. t. 28 (1847). — Decaisne in *Rev. Hort.* 1853, 141, t. — Hooker in *Bot. Mag.* LXXXI. t. 4864 (1855). — Miquel in *Ann. Mus. Lugd.-Bat.* III. 9 (*Prol. Fl. Jap.* 197) (1867). — Franchet & Savatier, *Enum. Fl. Jap.* I. 21 (1875). — Hance in *Jour. Bot.* XVI. 8 (1878). — Moore in *Jour. Bot.* XVI. 137 (1878). — Franchet in *Nouv. Arch. Mus. Paris*, sér. 2, V. 177 (*Pl. David.* I. 25) (1882). — Lavallée, *Icon. Arb. Segrez.* 97, t. 27, 28 (1882). — Hemsley in *Jour. Linn. Soc.* XXIII. 30 (1886). — Sargent in *Gard. & Forest*, IV. 136, fig. 25 (1891). — Diels in *Bot. Jahrb.* XXIX. 344 (1900). — Gagnepain in *Bull. Mus. Nat. Hist. Paris*, XIV. 69 (1908). — Nakai in *Jour. Coll. Sci. Tokyo*, XXVI. Art. I. 40 (*Fl. Kor.*) (1909). — Pampanini in *Nuov. Giorn. Bot. Ital.* n. ser. XVII. 273 (1910).

Rajania quinata Thunberg, *Fl. Jap.* 148 (1784).

Western Hupeh: vicinity of Ichang, thickets, alt. 600–1300 m., May 7, 1907 (No. **2388**; climber 3–5 m., flowers chocolate-red); without locality, April 1900 (Veitch Exped. No. 105); without locality, *A. Henry* (No. 3807). Chekiang: vicinity of Ningpo, 1908, *D. Macgregor*. Korea: Quelpaert, April 1908 and May 1909, *Taquet* (Nos. 4612, 2601).

This plant is not uncommon at low altitudes in rocky places throughout western Hupeh. It shares with the various species of *Holboellia* and with *Akebia lobata* in the colloquial name of "Pa-yueh-cha." The fruit is eaten locally.

Akebia lobata Decaisne in *Arch. Mus. Paris*, I. 196, t. 13 b (1839); in *Ann. Sci. Nat.* sér. 2, XII, 107 (1839). — Siebold, *Fl. Jap.* I. 145, t. 78 (1840?). — Miquel in *Ann. Mus. Lugd.-Bat.* III. 9 (*Prol. Fl. Jap.* 197 (1867)). — Franchet & Savatier, *Enum. Pl. Jap.* I. 21 (1875). — Hemsley in *Journ. Linn. Soc.* XXIII. 30 (1886). — Franchet in *Nouv. Arch. Mus. Paris* sér. 2, VIII. 194 (*Pl. David.* II. 11) (1886). — Diels in *Bot. Jahrb.* XXIX. 344 (1900). — Gagnepain in *Bull. Mus. Nat. Hist. Paris*, XIV. 69 (1908). — Pampanini in *Nuov. Giorn. Bot. Ital.* n. ser. XVII. 272 (1910). — Dunn & Tutcher in *Kew Bull. Misc. Inform.* Add. ser. X. 32 (*Fl. Kwangtung & Hongkong*) (1912).

Akebia quercifolia Siebold & Zuccarini *Fl. Jap.* I. 146 (1840?). — Miquel in *Ann. Mus. Lugd.-Bat.* III. 9; *Prol. Fl. Jap.* 197 (1867). — Franchet & Savatier, *Enum. Fl. Jap.* I. 21 (1875).

Western Hupeh: Hsing-shan Hsien, thickets, alt. 1300 m., May and September 1907 (No. **171**; climber 3 m., flowers maroon red, fruit purplish); without locality, *A. Henry* (No. 7655). Western Szech'uan: Wa-shan, alt. 1300–1800 m., September 1908 (No. **925**, in part; climber 6 m., fruit pale purple).

Not common in central and western China. Colloquially it is known as "Pa-yueh-cha," and the fruit is eaten.

Akebia lobata, var. **australis** Diels in *Bot. Jahrb.* XXIX. 344 (1900).—Pampanini in *Nuov. Giorn. Bot. Ital.* n. ser. XVII. 273 (1910).

Akebia Chaffanjoni Léveillé in *Bull. Soc. Agric. Sci. Sarthe*, LIX. 316 (1904).—Fedde, *Sp. Rep. Nov.* VI. 372 (1909).
Akebia lobata, var. *clematifolia* Gagnepain in *Bull. Mus. Nat. Hist. Paris* XIV. 69 (pro parte, non Ito) (1908).

Kiangsi: Kuling, rocky places, alt. 1100 m., common, July 30, 1907 (No. **1509**; climber 3–5 m.). Western Hupeh: Changlo Hsien, thick-

ets, alt. 1000–1300 m., May 20 and September 1907 (No. **144**; climber 3–6 m., flowers dark chocolate-red, fruit purple); Ichang, ravines and thickets, alt. 300–1000 m., April and May 10, 1907 (Nos. **2386**, **2387**; climber 5–6 m. flowers chocolate-red); without locality, April 1900 (Veitch Exped. No. 105[a]); Ichang and neighborhood, *A. Henry* (No. 3382); without locality, *A. Henry* (Nos. 1415, 7856[a]). Szech'uan: without locality, *A. Henry* (No. 5636). Western Szech'uan: Wên-ch'uan Hsien, thickets, alt. 1000–1500 m., September 1908 (No. **925**, in part; climber 6 m., fruit pale purple). Yunnan: Mengtze, mountains, alt. 1300 m., *A. Henry* (No. 10679).

This variety is much more abundant in central and western China than the type and is found at lower altitudes. Gagnepain (l. c.) refers this plant to *A. clematifolia* Siebold & Zuccarini and at the same time reduces it to a variety of *A. lobata* Decaisne. The plant of Siebold & Zuccarini is easily distinguished from *A. lobata*, var. *australis* Diels, by its thinner and much broader leaflets and is best kept as a distinct variety.

Here may be added a note on a variety of *A. quinata* from Formosa:

Akebia quinata, var. **longeracemosa** Rehder & Wilson, n. comb.

Akebia longeracemosa Matsumura in *Tokyo Bot. Mag.* XIII. 18 (1899). — Matsumura & Hayata in *Jour. Coll. Sci. Tokyo* XXII. 17, t. 2 (*Enum. Pl. Formosan.*) (1906).

Formosa: Takow, Ape's Hill, *A. Henry* (No. 319; large climber, in flower May 12); Bankinsing, *A. Henry* (No. 1829).

This differs from the type only in its very much longer peduncles and usually broader leaflets.

SINOFRANCHETIA Hemsl.

Sinofranchetia chinensis Hemsley in *Hooker's Icon.* XXIX. t. 2842 (1907). — Fedde, *Rep. Sp. Nov.* V. 343 (1908). — Bean in *Kew Bull. Misc. Inform.* XXII. 355 (1909). — Schneider, *Ill. Handb. Laubholzk.* II. 912, fig. 572 (1912).

Holboellia cuneata Oliver in *Hooker's Icon.* XIX. t. 1817 (pro parte) (1889) quoad fructum.

Parvatia chinensis Franchet in *Journ. de Bot.* VIII. 281 (1894).

Holboellia chinensis Diels in *Bot. Jahrb.* XXIX. 343 (1900). — Réaubourg in *Bull. Soc. Bot. France*, LIII. 455, fig. 4 (1906).

Western Hupeh: Fang Hsien, woods, alt. 1600–2600 m., May 19 and September 1907 (No. **226**; climber 10 m., flowers white with chocolate-colored striae, fruit lavender-purple); without locality, *A. Henry* (No. 6480). Western Szech'uan: Chiu-ting-shan, thickets, alt. 1600–2800 m., May 22 and October 1908 (No. **1292**; climber 6–10 m.,

flowers whitish, fruit pale blue); southeast of Sungpan, woodlands, alt. 2600–2800 m., August 1910 (No. **226**[a]; large climber 6–10 m.); without precise locality, May 1904 (Veitch Exped. No. 3140).

One of the strongest growing and most common deciduous climbers in the woods and forests of western Hupeh and of Szech'uan between 1500–2800 m. alt. The inconspicuous flowers are followed by long racemes of pale lavender-purple colored grape-like fruits. The pulp of the fruit is whitish, watery, edible, but of insipid flavor. The small flattened seeds are dull black.

SARGENTODOXA Rehd. & Wils.

Sargentodoxa Rehder & Wilson, n. gen.

Flores, ut videtur, dioeci. Flores masculi: sepala 6, biserialia, aequalia, petaloidea; nectaria 6, minuta, suborbicularia, carnosa; stamina 6, libera, filamentis brevibus, antheris oblongis, extrorsis, birimosis, connectivo carnoso lato apiculato; ovaria rudimentaria minuta, 4–5, filiformia. Flores feminei: perianthium ignotum; carpella discreta, plura v. numerosa, lageniformia, in stylum filiforme attenuata, stigmate, ut videtur, parvo subcapitato; ovula solitaria, pendentia, anatropa. Carpella matura ovoidea, manifeste stipitata, carnosa, toro subgloboso v. oblongo insidentia; semina ovoidea, testa crustacea nitidissima levissima nigra, hilo magno applanato cinereo-albido; albumen copiosum carnosum; embryo parvus, rectus, radiculo ad hilum spectante. — Frutex scandens; ramuli annotini duobus seriebus fasciculorum vascularium majorum et minorum alternantium instructi; folia 3-foliolata, decidua, longe petiolata: flores lutei, utriusque sexus in racemis multifloris pendulis basi nudis simul cum foliis e gemmis axillaribus perulatis orientibus. Fructus pauci in quoque racemo evoluti, carpellis numerosis v. pluribus baccatis stipitatis atrocoeruleis instructi.

Genus novum inter Lardizabalaceas anomalum ob carpella numerosa uni-ovulata; structura florum masculorum *Holboelliae* valde affine, foliis et inflorescentia *Sinofranchetiae* simile, fructu genera Magnoliacearum *Kadsuram* et *Schizandram* aemulans, sed carpellis uni-ovulatis stipitatis distinctum, dispositione et structura fasciculorum vascularium ramulorum Menispermacearum genera quaedam in mentem vocans.

This new genus is named in compliment to Professor C. S. Sargent, Director of the Arnold Arboretum, to which botanical science is indebted for splendid collections made in China, for the publications of the scientific results of its expeditions and for the introduction into cultivation of numerous ornamental and highly interesting Chinese trees and shrubs.

Sargentodoxa resembles in its foliage so closely *Sinofranchetia*, that Oliver described the flowers of this genus and the fruits of *Sinofranchetia* as belonging to the same species. The fruits, however, are so entirely different from all other members of the *Lardizabalaceae*, that this new genus can only be retained in its present place, if the characters of the family are considerably amended, or it must be made the type of a new family, but as long as the pistillate flowers are not known, it may be safer to leave it with the *Lardizabalaceae* as an anomalous genus which has the number of ovules in each carpel reduced to one and the number of carpels multiplied. Though we have not seen the pistillate flowers, we are convinced that aside from the sexual organs they do not present marked differences, as the inflorescences are exactly alike. The characters of the young carpels we described from undeveloped carpels which we found on the torus of the fruit between the mature carpels; they also show that the young carpels are at first sessile and that the remarkable long stalk develops while the carpel grows to maturity.

Sargentodoxa cuneata Rehder & Wilson, n. comb.

Holboellia cuneata Oliver in *Hooker's Icon.* XIX. t. 1817 (pro parte) (1889), fructibus exclusis. — Diels in *Bot. Jahrb.* XXIX. 343 (1900). — Réaubourg in *Bull. Soc. Bot. France*, sér. 4, VI. 454, fig. 3 (1906). — Hemsley in *Hooker's Icon.* sub. t. 2842 (1907). — Gagnepain in *Bull. Mus. Nat. Hist. Paris*, XIV. 67 (1908).

Frutex volubilis ad 7 m. altus; ramuli subteretes, annotini fusci v. fusco-rubri, glabri, cortice interdum rimis longitudinalibus fisso; gemmae pluri-perulatae perulis scariosis glabris acuminatis, exterioribus ovatis, interioribus oblongo-ovatis tenuioribus. Folia decidua, 3-foliolata, utrinque glabra, laete viridia, demum chartacea, folium medium rhomboideum v. rhomboideo-obovatum, acutum, basi in petiololum brevem 4–8 mm. longum attenuatum, integrum, 7–12 cm. longum et 3.5–7 cm. latum, nervis utrinsecus circiter 4, foliola lateralia oblique ovata, sessilia, acuta, basi intus cuneata, extus fere truncata v. rotundata, quam terminale paullo majora; petioli supra leviter sulcati, basi dilatati, 4–11 cm. longi, glabri. Flores masculi lutei, fragrantes, in racemis multifloris pendulis 10–12 cm. longis dispositi; pedicelli graciles, 1.5–2 cm. longi, basi bractea oblonga acutiuscula scariosa 3–4 mm. longa suffulti, supra medium bracteolis 2 minutis subulatis distantibus instructi; sepala 6, erecto-patentia v. patentia, anguste oblonga, obtusiuscula v. obtusa, margine leviter undulata et demum involuta, 10–12 mm. longa et 3–4 mm. lata; nectaria 6, rhombico-orbicularia, circiter 1.2 mm. longa; stamina 6, 3.5–4 mm. longa, filamentis anthera dimidio v. ultra brevioribus dilatatis, antheris manifeste extrorsis oblongis apicem versus attenuatis, connectivo lato crasso apiculato; ovaria rudimentaria filiformia v. interdum basi leviter incrassata, 1 mm. longa. Fructus plerumque pauci tantum in

racemo 15–20 cm. longo evoluti, pedicello valde incrassato insidentes; torus subhemisphaericus v. oblongus, 6–25 mm. longus; carpella ovoidea, 8–10 mm. longa, carnosa, atrocoerulea, stipiti 6–12 mm. longo crasso concolori insidentia; semina ovoidea, 4.5–5.5 mm. longa et 4.5–5 mm. lata, testa nitida laevissima nigra, basi applanata et hilo diametrum seminis aequante cinereo-albido medio minute apiculato notata.

Western Hupeh: Hsing-shan Hsien, thickets, alt. 600–1300 m., common, May 10, 1907 (No. **168**, in part (flowers)); Changyang Hsien, thickets, alt. 1300 m., September 1907 (No. 168, in part (fruit)); without locality, May 1900 (Veitch Exped. No. 726).

A plant of *Sargentodoxa cuneata* is growing at the Arnold Arboretum, but it has not yet flowered. For warmer regions it will certainly be a handsome climber with its pendulous racemes of yellow fragrant flowers in spring.

BERBERIDACEAE.

Determined by Camillo Schneider.

BERBERIS L.

Sect. ANGULOSAE Schneider.

Berberis dictyophylla Franchet, *Pl. Delavay.* 39, t. 11 (1889). — Schneider, *Ill. Handb. Laubholzk.* I. 309, fig. 198 x–z (1905); in *Bull. Herb. Boissier*, sér. 2, V. 396 (1905).

Yunnan.

Berberis dictyophylla, var. **epruinosa** Schneider, n. var.

A typo differt ramulis junioribus distinctius angulato-sulcatis, epruinosis, ruberrimis, foliis subtus epruinosis pallide viridibus, floribus ut videtur intensius coloratis.

Western Szech'uan: Ta-p'ao-shan, north-east of Tachien-lu, thickets, alt. 3600–4300 m., July 1908 (No. **2866**, type; bush 1–1.60 m. tall, flowers yellow); June 1904, ravines, alt. 5500 m. (Veitch Exped. No. 3146, 1 m. tall); and probably June 1904, woods, alt. 3800–4000 m. (Veitch Exped. No. 3145); only the fruiting branches!

The type of Franchet has the leaves distinctly glaucous beneath and also pruinose twigs. This is the same in *B. approximata*, described by Sprague in *Kew Bull. Misc. Inform.* 1909, 256. Sprague cites the plate 7833 of the *Bot. Mag.* which represents only a form of *B. dictyophylla* with copiously serrate leaves. The flowers of the plate are as large as on plate 11 of Franchet in his *Pl. Delavay*. Therefore I agree with Rehder in treating it as a variety of the type as *B. dictyophylla*, var. *approximata* Rehder in *Mitt. Deutsch. Dendr. Ges.* XX. 183 (1912).

Berberis diaphana Maximowicz in *Bull. Acad. Sci. St. Pétersbourg*, XXIII. 309 (1876); *Fl. Tangut.* 32 t. 8 fig. 1–7 (1889). — Schneider, *Ill. Handb. Laubholzk.* I. 305, fig. 198 a–g (1905); in *Bull. Herb. Boissier*, sér. 2, V. 398 (1905). — Rehder in Sargent, *Trees and Shrubs*, II. 19, t. 109 (1907).

B. yunnanensis Hutchinson in *Bot. Mag.* CXXXIV. t. 8224 (non Franchet) (1908).

Western Szech'uan: near Wa-shan, thickets, alt. 3000–3300 m., June and September 1908 (No. **930**; bush 1–2 m. high, flowers yellow);

Sungpan, thickets, alt. 3800–4000 m., October 1910 (No. **4190**; bush, 1.5–1.75 m. tall, fruit scarlet). — The following specimens possibly belong to this species: Pan-lan-shan, west of Kuan Hsien, alt. 4000–4300 m., June 24, 1908 (No. **2865**; bush 0.60–1.30 m. high, flowers yellow); south-west of Tachien-lu, woodlands, alt. 3000–3600 m., October 1910 (No. **4170**; bush 1.30–2 m. high, fruit crimson).

There are three species which seem to be very nearly related; these are *B. macrosepala*, *B. diaphana* and *B. yunnanensis*. The one described first is *B. macrosepala* Hooker f. & Thomson, which comes from the Sikkim Himalaya. It is well distinguished by its puberulous branchlets and has not yet been found in China. Mr. Hutchinson says in *Bot. Mag.* (l. c.), that it has been collected in western China by Wilson, but this seems to be an error. He also describes and figures there as *B. yunnanensis* a cultivated plant, which certainly belongs to *B. diaphana*. The type of this species may be distinguished by its chartaceous leaves distinctly reticulate on both sides and mostly serrate, by the 1–4-flowered inflorescence, and by the more numerous, 6–8, ovules and seeds. The typical *B. yunnanensis*, of which I have seen Franchet's type specimens, has thinner, mostly entire leaves and 3–8-flowered, often rather elongated inflorescences and only (3–)4 ovules and seeds. The nervation of the leaves of *B. yunnanensis* is coarser and thinner and nearly the same as in those of *B. macrosepala*, the leaves of which are more papillose beneath and more serrate. The types of these three species may be distinguished as follows:

Berberis macrosepala: ramuli puberuli; folia adulta membranacea, plerumque spinoso-serrata, utrinque laxe reticulata, subtus distincte papillosa; flores plerumque solitarii; ovaria ovulis circiter 6 instructa; styli nulli.

Berberis diaphana: ramuli glabri; folia adulta chartacea, plerumque spinoso-serrata, utrinque distincte et anguste reticulata, subtus pruinosa v. leviter papillosa; flores solitarii v. bini v. ad 4 racemoso-fasciculati; ovaria ovulis 6–8 instructa; styli breves v. nulli.

Berberis yunnanensis: ramuli glabri; folia adulta membranacea, plerumque integra, utrinque laxe reticulata; flores 3–8 fasciculati v. fasciculato-racemosi v. racemosi; ovaria ovulis (3–)4 instructa; styli breves v. nulli.

But there are some forms, which I think are intermediate between the last two species, for instance, Wilson's No. 4170. The leaves of this specimen are mostly entire, their nervation is rather like that of *B. diaphana* and the fruits are solitary, bearing only four seeds (or two seeds and two arrested ovules). This as well as No. 2865 I have here tentatively referred to this species. But there is a very interesting, somewhat intermediate, form, collected by Wilson (No. 3145, Veitch Exped. 1904; flowering specimens), the leaves of which very much resemble those of *B. yunnanensis*, while the single flowers with 8 ovules agree with those of *B. diaphana*.

Here may also be added the description of a new variety collected by *Mr. Purdom:*

Berberis diaphana, var. circumserrata Schneider, n. var.

A typo differt foliis dense et graciliter circumserratis serraturis spinosis.

Shensi: Tai-pei-shan, 1910, *W. Purdom* (No. 4).

The specimen before me consists only of old gray twigs with rather strong spines, young leaves and single flowers. The leaves are roundish-obovate and distinctly reticulate on both sides. The ovaries contain only four ovules. All things considered this form seems to be a rather distinct variety of *B. diaphana*.

Berberis yunnanensis Franchet in *Bull. Soc. Bot. France*, XXXIII. 388 (1886); *Pl. Delavay*. 38 (1889); Schneider in *Bull. Herb. Boissier*, sér 2, V. 397 (1905).

Western Szech'uan: Tachien-lu, thickets, alt. 2600–3000 m., September 1908 (No. **1038**; bush 1–3 m. tall, fruits salmon red); north-east of Tachien-lu, forming thickets, alt. 3000–4000 m., July 6, 1908 (Nos. **2852, 2855**; bush 1–4 m. tall, flowers yellow).

See note under *B. diaphana*.

A picture of this shrub will be found under No. 200 of the collection of Wilson's photographs and also in his *Vegetation of Western China*, No. 130.

Berberis Tischleri Schneider in *Bull. Herb. Boissier*, sér. 2, VIII. 201 (1908).

Frutex ad 2.5 m. altus, ut videtur habitu *B. yunnanensis;* ramulos hornotinos non vidi, biennes vetustioresque cinerei, angulati, glabri, vix divaricati; internodia 1.5–3 cm. longa; spinae 1–3-fidae, ramulorum basim versus satis evolutae, mediocres ad 2.5 cm. longae, crassae, flavescentes, subtus sulcatae; folia ad 8 fasciculata, membranacea v. chartacea, obovato-rotundata, obovato-oblonga v. oblonga, apice rotunda v. obtusa, mucronulata, hinc inde fere emarginata, basim versus subito in petiolum brevissimum v. ad 7 mm. longum contracta, margine utrinque breviter spinuloso-serrata, raro integra, supra viridia, paullo nitentia, subtus pallida, pruinosa sed vix papillosa, 1.5:0.8 cm. ad 4.5:2 cm. (v. in No. 4134 ad 6:2.2 cm.) magna, utroque latere distincte sed satis laxe reticulata; inflorescentiae fasciculato-racemosae, 4–15-florae, fructiferae ad 6 cm. (v. in No. 4134 ad 9 cm.) longae; flores saepe ad basim et ad apicem pedunculi nudi satis elongati pseudo-umbellati, lutei, mediocres (circiter 7–8 mm. diam.); pedicelli variabiles, 1.5–2.5 (v. fere 3) cm. longi, basi bracteis linearibus acuminatis ad 3 mm. longis suffulti; prophylla lanceolata; sepala exteriora ovato-lanceolata, interiora late ovata, obtusa, petalis obovato-oblongis, apice emarginatis, basi breve unguiculatis, glanduliferis paullo majora; stamina petalis breviora, apice breve apiculata; ovaria ovulis (3–)4 sessilibus instructa; fructus in mense Octobri collecti elliptico-oblongi, flavo-rubri, leviter pruinosi, opaci, apice in stylum elongati, ad 10:7 mm. magni; semina matura plerumque 2.

Western Szech'uan: north of Tachien-lu, uplands, alt. 3000–3300 m., July 1908 (No. **2853**; bush 2–4 m. tall, flowers yellow); in the neighborhood of Tachien-lu, thickets, alt. 2600–3300 m., June 1908 (No. **2854**; bush 1–3 m. tall, flowers yellow); Tachien-lu, alt.

3200–3800 m., thickets, October 1910 (No. **4134**; shrub 2–2.5 m. tall, fruit red, ovoid; a form with larger leaves and inflorescence). Pan-lan-shan, west of Kuan Hsien, alt. 2300–3000 m., June 1908 (Nos. **2856**, **2859**; bush 3 m. tall, flowers yellow); same locality, thickets, alt. 2600–3000 m., October 1910 (No. **4307**; bush 2 m. high); Min valley, Mao-chou, alt. 1600 m., October 1908 (No. **1177**; bush 1–2 m. tall, fruit coral red).

The type of this species had been collected by Potanin in northern Szech'uan (ad fl. Nereku, July 26, 1885). Originally I described the leaves as green on both sides, but this is an error. After comparing the type specimen with Wilson's specimens, I think the latter agree very well with *B. Tischleri*. Not having seen the flowers before, I have given above the more complete description.

In the nervation of the leaves this species much resembles *B. yunnanensis*, but in its inflorescence with more numerous and smaller flowers and in the more elongated fruits *B. Tischleri* differs from that species. At first sight our species looks much like *B. Silva-Taroucana* Schneider as there indicated.

In the Arnold Arboretum there is a cultivated plant, bearing the number 181, which seems to be nearly allied to *B. Tischleri*.

Here may be added the description of a new species of this section based on material not collected during the Arnold Arboretum Expeditions:

Berberis Ambrozyana Schneider, n. sp.

Frutex 0.50–1 m. altus, ut videtur dense et graciliter ramosus; ramuli juniores (hornotini nondum vidi) brunnescentes, glabri, leviter angulati, vetustiores cinerascentes; internodia brevia, 0.3–1 cm. longa; spinae 1–3-fidae, graciles, flavescentes, acutae, mediae ad 12 mm. longae, subrotundae. Folia parvula, ad 8 fasciculata, lanceolata v. oblanceolata integerrima apice obtusa, minime mucronulata, basim versus angustata, sessilia, supra viridia, subtus albo-pruinosa, utrinque, sed superne distinctius, reticulata, ramulorum floriferorum 8:1.5 ad 12:4 mm. magna. Flores singuli, satis magni, lutei; pedicelli 2–3 mm. longi, basi bracteis rubescentibus circumdati; prophylla et sepala externa non vidi; sepala interna eximie lanceolata, acuta, fere ad 9 mm. longa; petala sepalis minora, anguste oblanceolata, apice bifida, basi vix unguiculata, glandulis 2 oblongis instructa; stamina apice distincte apiculata; ovaria stylosa, ovulis 5 (an semper?) sessilibus instructa. Fructus ignoti.

Western Szech'uan: without locality, alt. 3200–3400 m., June 1904 (Veitch Exped. No. 3146[a]; shrub 0.5–1 m. tall).

In the leaves this species closely resembles *B. minutiflora* Schneider, *Ill. Handb. Laubholzk.* II. 914 (*B. brevipes* (Franchet) Schneider, non Greene), but this Yunnan plant has much smaller flowers; the leaves have a different nervation and the fruits bear a sessile stigma. *Berberis Ambrozyana* may be more nearly related to *Berberis parvifolia* Sprague, in *Kew Bull. Misc. Inform.* 1908, 445, which differs from it in its puberulous branchlets and in the smaller and more numerous flowers. I have not yet seen the type of Sprague's species (Wilson No. 3154[a]). In the form of the sepals and petals *Berberis Ambrozyana* resembles the well-known Japanese *Berberis Thunbergii*.

The specific name is in honor of Baron István Ambrózy, the Hungarian patron of botany and garden making, to whom I am indebted for much assistance.

Sect. WALLICHIANAE Schneider.

Berberis candidula Schneider in *Mitt. Deutsch. Dendrol. Ges.* XIV. 115 (1905); in *Bull. Herb. Boissier*, sér. 2, VIII. 196 (1908).

B. Wallichiana, var. *pallida* Bois in Vilmorin & Bois, *Frut. Vilmorin*. 15 (non Hooker f. & Thomson) (1905).
B. Hookeri, var. *candidula* Schneider, *Ill. Handb. Laubholzk.* I. 303 (1904).

Western Hupeh: Fang Hsien, alt. 2300 m., May 17, 1907 (No. **2880**; prostrate or nearly so, 15–45 cm. tall, on rocks).

Berberis verruculosa Hemsley & Wilson in *Kew Bull. Misc. Inform.* 1906, 151. — Schneider in *Bull. Herb. Boissier*, sér. 2, VIII. 195 (1908).

Western Szech'uan: Mupin, thickets and rocky places, alt. 2600–3200 m., July and October 1908 (No. **1083**, in part; evergreen shrub, 0.30–1 m. high, flowers yellow, fruit violet-black); Chiu-ting-shan, rocky places, alt. 1300–2000 m., May 24, 1908 (No. **1083**, in part; bush 0.30–1 m., flowers yellow); Tachien-lu, rocky places in woods, alt. 3800–4100 m., October 1910 (No. **4381**; shrub 0.25–0.35 m. tall, flowers yellow, fruit black); without precise locality, July 1903 (Veitch Exped. Nos. 3150, 3150[a]; bush 0.60–1.30 m. high).

Berberis Asmyana Schneider, n. sp.

Frutex metralis v. paullo ultra; ramuli annotini striato-sulcati, sparse et unconspicue verruculosi, glabri, cinerei v. flavo-cinerei, internodiis 1–2 cm. longis; spinae 3-fidae, graciles, fere teretes, 1–1.5 cm. longae, rarius breviores. Folia subcoriacea, 4–6-fasciculata, obovato-elliptica v. obovato-oblonga, acuta et spinoso-mucronata, basi cuneata in petiolum brevissimum attenuata, margine leviter revoluta, supra medium remote spinoso-serrata dentibus subaccumbentibus utrinque 1–3 parvis fere ad mucronum spinosum reductis, 1.5–3 cm. longa et 7–9 mm. lata, supra nitentia, viridia, subtus pallide viridia, nervis utrinsecus 4–5 subtus vix visibilibus. Flores solitarii, rarius 2–3 fasciculati, circiter 1 cm. diam., flavi extus rubescentes, graciliter pedicellati pedicellis 2–2.5 cm. longis; prophylla ovata acutiuscula, sepala exteriora late ovata interioribus rotundo-ovalibus breviora, petala sepalis interioribus subaequilonga, obovata, apice leviter emarginata, basi breviter lateque unguiculata, glandulis circiter 1.25 mm.l ongis approximatis instructa; stamina filamentis sub anthera interdum leviter dentatis; ovarium oblongo-ovoideum,

stigmate sessili, ovulis plerumque 4 fere sessilibus instructum. Fructus maturus non visus.

Western Szech'uan: Mupin, thickets, alt. 2000 m., June 1908 (No. 2873).

This species seems most closely related to *Berberis verruculosa* Hemsley & Wilson which is easily distinguished by the terete, densely verruculose branches, by the more coriaceous leaves, with more and stronger spiny teeth and by the shorter pedicels.

At the request of Mr. Wilson I have named this species for Dr. Asmy, an eminent surgeon in charge of the German Hospital, Chungking in recognition of valued service rendered to him in the years 1908 and 1911.

Berberis Gagnepainii Schneider in *Bull. Herb. Boissier*, sér. 2, VIII. 196 (1908); *Ill. Handb. Laubholzk.* II. 914 (1912). — Hemsley in *Gard. Chron.*, ser. 3, XLVI. 226, fig. 96 (1909).

Berberis acuminata Stapf in *Bot. Mag.* CXXXIV. t. 8185 (non Franchet) (1908).

Western Szech'uan: Wa-shan, thickets, alt. 2500–3000 m., September and November 1908 (No. 1344; bush 1.30–2 m. high, fruit blue-black); Mupin, thickets, alt. 2000–2500 m., June and November 1908 (No. 1137; evergreen bush, 1.30–2 m. high, flowers yellow, fruit blue-black); southeast of Tachien-lu, alt. 2300–3000 m., July and October 1908 (No. 1137[a]; bush 0.3–1 m. tall, flowers yellow, fruit black); Ching-chi Hsien, near Wa-wu-shan, woodlands, alt. 2600 m., October 16, 1908 (No. 2874; shrub 0.5–0.75 m. tall); cliffs, July 1903, alt. 4000 m. (Veitch Exped. Nos. 3148, type, 3148[a]).

The type (No. 3148) is distinguished by its finely pustulate branchlets, in this somewhat resembling *B. verruculosa*. In No. 1344 the branchlets also are somewhat pustulate. This number bears fruits, which measure about 10:6 mm. and have sessile stigmas. No. 1137 is distinguished by more numerous fascicles and somewhat smaller fruits, but the ovaries and fruits contain 4 ovules and 4 seeds. The leaves are up to 7:1.5 cm. long, and the petioles are 1–4 mm. (not cm. as misprinted in my diagnosis) long. I think all these numbers belong to *B. Gagnepainii*, but No. 1137 may represent a somewhat different variety, of which I do not know the young branchlets. No. 1137[a] also has 5 ovules, but the flowers are borne on very long (3–4 cm.) pedicels, and the serrature of the leaves much resembles that of the leaves of *B. Veitchii* Schneider. No. 2814 differs in its rather large leaves (to 7: 2 cm.), some of which have a slight bloom on the lower surface. The unripe fruits contain four ovules. This number may represent a distinct variety.

Berberis triacanthophora Fedde in *Bot. Jahrb.* XXXVI. Beibl. 82, 43 (1905).

Berberis sanguinea Schneider in *Bull. Herb. Boissier*, sér. 2, V. 453 (ex parte, non Franchet)[1] (1905); VIII. 129 (1908).

Western Hupeh: Patung Hsien, woodlands, alt. 1300–2000 m., June 1907 (No. **698**, in part; bush 0.60–1.20 m. tall, flowers yellow within, reddish without); Fang Hsien, woodlands, alt. 1300–1600 m., November 1907 (No. **698**, in part; bush 0.60–1.20 m. tall, fruit black); north and south of Ichang, woods, rare, alt. 1300–1600 m., June 1907 (No. **698**, in part; bush 0.60–1.20 m. tall, flowers yellow within, reddish without); Chienshi, alt. 1600–2400 m., June 1900 (Veitch Exped. Nos. 951, 952; shrub 1.5 m. tall, flowers red); Changyang (*A. Henry*, No. 5681, type).

Berberis sanguinea Franchet in *Nouv. Arch. Mus. Paris*, sér. 2, VIII. 194, t. 5 (*Pl. David.* 12, t. 5) (1885). — Schneider in *Bull. Herb. Boissier*, sér. 2, V. 403 (pro parte) (1905); VIII. 196 (1908).

Frutex ramulis junioribus striatis v. sulcatis, pallide cinereis v. flavescentibus, foliis subtus paullo v. vix pallidis, margine dentibus satis crassis et approximatis (in foliis 5 cm. longis utrinque 13–15); pedicellis vix supra 6–12(–15) mm. longis.

Western Szech'uan: Tachien-lu, open country, alt. 2300–2600 m., September 1910 (No. **4637**; bush 1–1.60 m. tall, fruit bluish black). Pan-lan-shan, west of Kuan Hsien, thickets, rare, alt. 3000 m., June 21, 1908 (No. **2875**; bush 0.75–1.5 m. tall, flowers yellow and bronze).

The typical *Berberis sanguinea* is well distinguished by these characters. The preceding species is according to my opinion quite distinct. No. 2875 represents a form with smaller leaves, the serration of which is very much like that of *B. triacanthophora* Fedde, but the branches are yellow and distinctly sulcate and the flowers are short-pedicelled. The unripe fruits contain three ovules.

Berberis Sargentiana Schneider, n. sp.

Frutex 1.25–2 m. altus; ramulos juniores non vidi, biennes glabri, fere rotundati, leviter brunnescentes, vetustiores cinerei; internodia 3–6 cm. longa; spinae plerumque bene evolutae, 3-fidae, brunnescentes, mediae ad 2.5 cm. longae, satis robustae, subtus sulcatae; folia ad 3 fasciculata, coriacea, hypodermate modo *B. Wallichianae* instructa, ovato-oblonga v. ovato-lanceolata, apice acuta, basi acuta in petiolum 3–6 mm. longum contracta (4:1.8 cm.) v. 6–8:2 cm. ad 8.5:3 cm. v. 13.5:3 cm. magna, supra viridia, subtus pallide viridia, utroque

[1] Differt a *Berberis sanguinea* ramulis junioribus purpureis v. rutilis, rotundatis, foliis subtus distincte pallidis, margine dentibus gracilibus distantibus (in foliis 5 cm. longis utrinque circiter 5–6); pedicelli saepissime 1–2 cm. longis.

latere leviter nitentia, subtus distinctius quam supra reticulata, nervulorum reticulo plus minus elevato, margine anguste et graciliter duplicato-spinoso-dentata, dentibus majoribus 1.5–2.5 mm. longis, acutissimis; flores 2–6, fasciculati, pallide flavi, mediocres (circiter 8 mm. diam.); pedicelli 6–18 mm. longi; prophylla late ovato-triangularia; sepala interiora late ovato-rotunda petalis late obovatis apice emarginatis, basi brevissime unguiculatis, glandulis normalibus vix majora; ovaria ovulis 2–3 sessilibus instructa. Fructus maturi nigri, ovato-globosi, ad 8:6–7 mm. magni stigmatibus sessilibus; semina 2–3.

Western Hupeh: Hsing-shan Hsien, woods, alt. 1300–1600 m., June and November 1907 (No. **564**, type); Fang Hsien, woodlands, not common, alt. 1600 m., November 1907 (No. **555**).

There is a little difference in the shape and serrature of the leaves of the two numbers. No. 564 looks very much like the typical *B. arguta*, but Franchet's type specimen seems to be well distinguished by its rather thinner, more finely reticulated leaves (on both faces), which are without any hypoderm and bear finer and more numerous spines. The leaves of *B. Sargentiana* are furnished with a distinct epiderm-like hypoderm like those of *B. Wallichiana*.

Berberis Sargentiana is the only evergreen Barberry which has proved perfectly hardy at the Arnold Arboretum and for this reason is one of the most desirable of the recent introduction as a garden plant.

Berberis levis Franchet in *Bull. Soc. Bot. France*, XXXIII. 386 (1886); *Pl. Delavay*. 37 (1889). — Schneider, *Ill. Handb. Laubholzk.* II. 916 (1912).

B. stenophylla Hance in *Jour. Bot.* XX. 257 (non Lindley) (1882).
B. Soulieana Schneider in *Bull. Herb. Boissier*, sér. 2, V. 449 (1905).

Western Szech'uan: Mupin, thickets, alt. 1300–2000 m., November 1908 (No. **1284**; bush 1–1.60 m. tall, fruit jet-black); Pan-lan-shan, west of Kuan Hsien, thickets, alt. 2000–2300 m., October 1910 (No. **4287**; evergreen shrub, 1.60 m. tall, fruit orange-red [apparently not quite ripe?]).

Wilson's specimens agree very well with the type of Franchet, the fruits of which are without bloom.

Berberis Julianae Schneider, n. sp.

Frutex ad 2-metralis; ramuli juniores glabri, flavescentes, angulati, vetustiores cinerascentes; internodia 2–4 cm. longa; spinae satis robustae, 3-fidae, mediae ad 4 cm. longae, flavo-brunnescentes, subtus levissime sulcatae; folia ad 5-fasciculata, crasse coriacea, ovata,

ovato-lanceolata v. lanceolata, 3:1 cm. ad 8.5:2 cm. v. 7:2.5 cm. magna apice acuta, spinosa, basi acuta sensim in petiolum 3–6 mm. longum attenuata, margine spinoso-dentata, spinis pungentibus 1–2 mm. longis utrinque circiter 8–20 instructa, supra viridia, nitida, hypodermate instructa; praeter costam immersam rete nervorum non v. vix visibili, subtus pallidiora; praeter costam tantum nervis lateralibus paullo elevatis et visibilibus; flores ad 15-fasciculati, satis parvi (circiter 6–7 mm. diam.), flavi, extus rubescentes, pedicelli 0.8–1.5 cm. longi; prophylla lanceolata; sepala interna late ovata, petalis obovatis apice emarginatis, basi breviter unguiculatis nectariis elongatis instructis majora; ovaria ovulis 1–2 subsessilibus instructa. Fructus vix maturi elliptici, nigri, pruinosi, ad 8:4–5 mm. magni, stylis brevibus exclusis; semina plerumque 1.

Western Hupeh: north and south of Ichang, alt. 1000–1300 m., May and October 1907 (No. **417**, type). Hupeh: Changyang, May 1900 (Veitch Exped. No. 535 in Arnold Arboretum Herb.; shrub, 1–2 m. tall). Yunnan: I-mên district, *A. Henry* (No. 10618; shrub 2.5 m., flowers; seems to be a form with more lanceolate leaves, 4:0.8 cm.–9:1.2 cm.). Shensi: Tai-pei-shan, 1910, *W. Purdom* (No. 7; fruit unripe, but apparently pruinose, possibly a distinct species).

Berberis Julianae much resembles in the leaves *B. Wallichiana* De Candolle, of which I have seen the type specimens of Wallich. These have somewhat thinner leaves, the hypoderm of which under the upper epidermis is not so well developed and resembles more the epidermis, so that it may be often overlooked. The leaves of *B. Julianae* are furnished with a similar but rather distinct hypoderm. Besides this the ovules of the true *B. Wallichiana* possess a long funiculus, but it is possible that this character may not be constant.

The type of *B. Wallichiana* was found in eastern Nepal, and I have seen it also from Shillong in the Khasi Hills in Assam, but I have not seen any Chinese specimens which represent the true *B. Wallichiana*.

B. Wallichiana, var. *microcarpa* Hooker f. & Thomson, which comes from the same parts of Assam, also has stalked ovules, but I have not yet found a hypoderm-like layer beneath the epidermis of the leaves, which are lanceolate, thinner, somewhat shorter and smaller than those of the type.

The plant from Shensi has leaves closely resembling those of cultivated forms in the Fruticetum Vilmorinianum at Les Barres, which represent the typical *B. Soulieana*. The seeds from which these plants were raised were collected by Abbé Farges in the mountains near Cheng-kou, northeastern Szech'uan. The numbers of Giraldi, cited by me in *Bull. Herb. Boissier*, sér. 2, VIII. 199 (1908) under *B. levis*, may belong to this species, but this needs further investigation. In the Herbarium of the Hof-Museum at Vienna the flowering branch of No. 535 is rather different and may belong to *B. Griffithiana* Schneider, see p. 364. The fruiting branch agrees very well with that of No. 417.

This species is named in compliment to my wife.

Berberis Bergmanniae Schneider, n. sp.

Frutex 1–2-metralis; ramuli juniores non visi, biennes v. vetustiores flavescentes v. flavocinerei, satis crassi, angulati, leviter divaricati, glabri, deinde cinerei; internodia 2 cm. ad 3.5 cm. longa; spinae plerumque trifidae, validae, flavescentes, mediae ad 3.5 cm. longae, fere rotundae. Folia ad circiter 5-fasciculata, crasse coriacea, ovato- v. obovato-elliptica, apice breviter acuta, spinosa, basim versus sensim in petiolum brevissimum v. nullum contracta; 2:1 v. 2.5:0.9 cm. ad 4.5:1.7 cm. magna, supra viridia, nitentia, subtus pallidiora v. pruinosa, nervo mediano elevato lateralibus minus quam supra visibilibus, margine spinoso-dentata dentibus gracilibus sed pungentibus utrinque circiter 6–12. Flores in uno ramo abbreviato ad 15-fasciculati, satis parvi (circiter 6 mm. diam.), flavi; pedicelli 5–15 mm. longi; sepala interna obovata, petalis obovato-oblongis basi glanduliferis (nectaria in No. 2878 ut videtur minima) paullo majora, ovaria ovulis 1–2 sessilibus instructa. Fructus ovati, inflati, nigri, albo-pruinosi, circiter 9:6 mm. magni stylis brevibus sed distinctis exclusis, pedicelli fructiferi rubri; semina 1–2.

Western Hupeh: Patung Hsien, thickets, alt. 1300 m., June and July 1907 (No. **2878**; with flowers and immature fruit). Western Szech'uan: mountain sides, Ching-chi Hsien, alt. 1600 m., November 1908 (No. **2876**; with mature fruit); west and near Wên-ch'uan Hsien, mountain sides, alt. 1600–2000 m., August 10, 1908 (No. **2877**; shrub 1–1.5 m. tall, with unripe fruit).

This species seems to be most nearly related to *B. pruinosa* Franchet, which is distinguished by the stronger spines of the leaves and by the fruits without styles and with 2–4 seeds.

To *B. Bergmanniae* may also belong David's specimen, which he collected in Mupin, April 1869 (shrub 3 m. tall; ravines).

This species is named in honor of Mrs. Marie Bergmann of Vienna.

Berberis Bergmanniae, var. **acanthophylla** Schneider, n. var.

A typo recedit foliis crasse sinuato-spinoso-dentatis, dentibus foliorum maximorum ad 5:2 cm. magnorum utrinque tantum 4–5, subtus laete virentibus.

Western Szech'uan: west and near Wên-ch'uan Hsien, alt. 2000–2500 m., November 1910 (No. **4149**; shrub 1–1.5 m. tall, fruit blue-black).

This variety is well marked by its leaves, but the blue-black fruits with their red pedicels and with two seeds closely resemble those of the type.

The following descriptions and notes referring to species of this section are based on specimens not collected during the Arboretum Expeditions.

Berberis Veitchii Schneider, n. sp.

Berberis acuminata Hort. Veitch (nomen nudum, non Franchet). — Schneider, *Ill. Handb. Laubholzk.* II. 916 (pro parte) (1912).

Frutex; ramuli juveniles glabri, rotundati v. leviter striati, rubescentes, vetustiores cinerei; internodia 3–6 cm. longa; spinae 3-fidae, apice ramulorum debiles, parvae, basim versus majores, robustiores, mediae ad 2 (v. in plantis cultis ad 5) cm. longae, flavae, subtus canaliculatae; folia ad 3 fasciculata, tenuiter coriacea, lanceolata v. anguste ovato-lanceolata, apice subacuminata, basi acuta, in petiolum brevissimum contracta, margine spinoso-dentata, spinis pungentibus 2–3 mm. longis utrinque circiter 9–22 instructa, 5.5:0.9 cm. ad 11.5:1.9 cm. (v. in plantis cultis ad 10:2.4 cm.) magna, supra pallide viridia, hypodermate non instructa, subtus pallide viridia, utroque latere tantum nervis lateralibus plus minus visibilibus, v. subtus praeter costam elevatam fere enervia; flores 5–8 fasciculati mediocres (circiter 9 mm. diam.), flavi; pedicelli 2.2–3.5 cm. longi, basi bracteis late-triangularibus breviter acuminatis suffulti; prophylla sepalaque exteriora late obovato-rhombica, sepala interiora late ovato-rotunda petalis obovatis apice emarginatis basi breviter unguiculatis glanduliferis majora; stamina normalia; ovaria ovulis 2, raro 3, subsessilibus instructa, estylosa. Fructus nondum vidi.

Western Hupeh: without locality, June 1900 (Veitch Exped. No. 1138).

In *Bull. Herb. Boissier*, sér. 2, VIII. 197 (1908) I placed this specimen with *B. acuminata*, but I now think that Franchet's species is different and that it may be distinguished by the much slighter and shorter serratures of the larger, somewhat thinner and a little more reticulate leaves. See also the key of the section *Wallichianae* on page 367.

Berberis subacuminata Schneider, n. sp.

Frutex ad 1.50 m. altus; ramuli juniores valde sulcato-striati, glabri, flavescentes; internodia 4–5 cm. longa; spinae 1–3-fidae, mediocres v. parvae, mediae ad 1.8 cm. longae, teretes, flavae. Folia ad 5 fasciculata, tenuiter coriacea, hypodermate non instructa, ovato-lanceolata, apice acuta sed non v. vix acuminata, basi acuta in petiolum 2–8 mm. longum contracta, viridia, utrinque fere concoloria et tenuiter reticulata, 4.5:1.4 cm. ad 9:2.2 cm. magna, margine graciliter et satis breviter spinoso denticulata, spinis utrinque 5–15. Flores ad 2–6 fasciculati mediocres (ad 8 mm. diam.) pedicelli 1.8–2.2 cm. longi; sepala interiora late obovata petalis obovato-oblongis apice leviter emarginatis basi unguiculatis nectariis valde elongatis instructis paullo majora; ovaria ovulis 2 sessilibus instructa. Fructus ignoti (in specimine Delavayana immaturi, ovati, circiter 7:4.5 mm. magni, stigmatibus sessilibus).

Yunnan: Yuan-chang, alt. 2000 m., *A. Henry* (No. 13267, type; shrub 1.25 m. tall, flowers yellow); "Mt. che tchotze sur Ta-pintze," August 23, *Delavay* (in Herb. Mus. Paris; differs in the solitary flowers and the shorter pedicels only 3–6 mm. long; Delavay says: "fruits mûrs noirs." I have only seen branches of the second year, which are slightly angulate).

In *Bull. Herb. Boissier*, sér 2, VIII. 197 (1908), I have mistaken this form for *B. acuminata* Franchet, but the type of Franchet's species has round twigs, much more elongated, distinctly acuminate leaves and petals with short nectaries. It seems to be a very rare species, and also Wilson's No. 1138 (1900) from western Hupeh, cited by me also under *B. acuminata* (l. c.), belongs to a different species, namely to *B. Veitchii* Schneider. In the reticulation of their leaves *B. acumi-*

nata and *B. subacuminata* somewhat resemble *B. arguta*, *B. Sargentiana* and *B. Ferdinandi-Coburgii*, but the serration of the leaves is rather different. See also the key of *Wallichianae* on page 367.

Berberis Ferdinandi-Coburgii Schneider, n. sp.

Frutex 0.75–1.5 m. altus; ramuli juniores glabri, angulati, flavescentes, vix divaricati, vetustiores cinerei; internodia 2–4 cm. longa; spinae 3-fidae, breves v. mediocres, acuta v. brunnescentes, mediae ad 1.5 cm. longae, subtus sulcatae; folia crasse coriacea, elliptico-lanceolata v. anguste ovato-lanceolata, apice breviter acuta, basi in petiolum 2–5 cm. longum contracta, acuta, 4.5:1.1 cm. ad 11:2.5 v. 13:3 cm. magna, supra viridia, hypodermate distincto instructa, subtus pallidiora, utroque latere leviter nitentia et reticulata, rete nervorum visibili, margine gracillime anguste aequaliter spinoso-serrata, spinis vix plus quam 1 mm. longis approximatis (circiter 6 pro 1 cm.); flores 15–25-fasciculati, lutei satis parvi, (circiter 6 mm. diam.); pedicelli 1–1.5 cm. longi; prophylla sepalaque externa rubescentia, lanceolata, acuta; sepala interna ovato-lanceolata plus minus acuta, petalis obovato-lanceolatis apice emarginatis basi breviter unguiculatis normaliter glanduliferis paullo longiora; ovaria ovulo 1 subsessili instructa. Fructus maturi nigri, ovato-elliptici, circiter 8–9:5 mm. magni, apice stylo brevi sed distincto coronati; semina solitaria.

Yunnan: Mengtze, alt. 2400 m., woods, *A. Henry* (No. 10257, type; shrub 0.75–1.5 m. tall, fruit reddish, flowers yellow); Szemao, E. Mt. forests, alt. 4000 m., *A. Henry* (No. 11617; shrub 1.25 m. tall, flowers yellow; No. 11617[a], shrub 1.50 m. tall, fruit black). Western Hupeh: Patung, *A. Henry* (No. 1458); Ichang, *A. Henry* (No. 3170).

I take the liberty of naming this species in honor of His Majesty King Ferdinand I. of Bulgaria, a great botanist and patron of natural history.

Berberis Griffithiana Schneider in *Bull. Herb. Boissier*, sér. 2, V. 403 (1905); VIII. 198 (1908).

B. Wallichiana, var. *pallida* Hooker f. & Thomson, *Fl. Brit. Ind.* I. 111 (pro parte) (1872), secundum specimen originale.

B. Wallichiana, var. *parvifolia* Franchet in *Bull. Soc. Bot. France*, XXXIII. 388 (1886); *Pl. Delavay*. 38 (1889), secundum specimen originale.

Yunnan: in monte Tsang-shan, supra Tali, alt. 2000 m., March 28, 1884, *Delavay* (No. 1124). Kwei-chou: Kouy-yang, May 1898, *É. Bodinier* (No. 2143). Western Hupeh: Changyang, May 1900, *E. H. Wilson* (Veitch Exped. No. 535; the flowering branches of the specimen in Herb. Hof-Museum, Vienna).

The type of this species was collected by Griffith in Bhootan (No. 125; which is the same as No. 1741). The Vienna specimen, the only one I had seen in 1905, has small leaves, measuring from 2:0.6 to 4:1.2 cm., like those of *B. Wallichiana* var. *parvifolia* Franchet. Both these specimens bear small papillae on the upper surface of the leaves. In the Kew Herbarium the number 1741 of Griffith, being the same as No. 125, bears leaves, of which the largest measure 7:1.6 cm., and I find similar leaves on No. 1742 of Griffith. These large leaves so much resemble the smaller leaves of *B. Julianae* and also the leaves of *B. Bergmanniae*, that one is inclined to unite these three species, but in their typical forms they look very different. It will need further investigations to decide, whether there are three distinct species or only three forms of one rather variable species. I have not yet seen the fruit of *B. Griffithiana*.

Berberis Delavayi Schneider, n. sp.

Frutex ad 1.5 m. altus; ramuli juniores flavescentes, leviter angulati, glabriusculi

(levissime verruculosi), vetustiores cinerascentes; spinae 3-fidae, graciles, superne deficientes, mediae ad 3 cm. longae, flavescentes. Folia satis tenuiter coriacea, ovata v. oblongo-ovata, utrinque acuta, basi in petiolum ad 6 mm. longum contracta, supra viridia, nitentia, hypodermate non instructa, subtus fere concoloria, utroque latere, sed subtus distinctius laxe reticulata, 3.3:1 cm. ad 5.5:1.8 cm. magna, margine spinoso-dentata dentibus 1–1.5 mm. longis utrinque 7–11 instructa. Flores 3–15-fasciculati, mediocres, flavi; pedicelli 0.7–2 cm. longi; prophylla late-triangularia, sepala interna late-ovata; petala obovato-oblonga, glandulifera; ovaria ovulis 3 instructa. Fructus ovati nigri?, circiter 9:6 cm. magni, stigmatibus sessilibus coronati; semina 2–3.

Yunnan: Fang-yang-tchong, woods, October 14, 1887, *Delavay* (fruiting branches; fruits 1–3, fascicled, pedicels up to 2 cm. long); Houang-li-pin supra Tapintze, woods, alt. 1800 m., March 21, 1887, *Delavay* (type; shrub 1–1.5 m. tall, flowers 8–15, pedicels shorter); Maen-shan, woods, alt. 2500 m., October 22, 1889, *Delavay;* Chi-tcho-tze, Houan-li-pin, March 12, 1883, *Delavay* (No. 485).

To this species may belong, possibly, Wilson's No. 2879 from western Hupeh, June 1907, consisting of old twigs with rather young leaves, and some flowers (1–5), but the ovate leaves show a somewhat finer and narrower serration and no distinct reticulation on the upper surface.

In shape, serration and nervation of the leaves *B. Delavayi* much resembles *B. Hookeri* Lemaire, but this species is well distinguished by its sulcate young twigs, its large flowers and its large fruits with 4–8 seeds. *Berberis Hookeri* may come from the eastern Himalaya (Sikkim, Bhootan) and Upper Burma, as indicated by me in *Bull. Herb. Boissier*, sér. 2. VIII. 197 (1908), but now I am inclined to think, that it possibly may be of garden origin or that it came from South America. Therefore this species has been excluded from the following key. All the forms cited by me under *B. Hookeri* in the place quoted above may belong to *B. Delavayi* or to a very nearly related new species.

As, with the exception of six, all the species of this difficult group have been enumerated above, a key of all the species of this section may be appended here.

CONSPECTUS ANALYTICUS SPECIERUM OMNIUM ADHUC COGNITARUM SECTIONIS WALLICHIANAE.

Facies superior foliorum hypodermate pertinente instructa.
  Folia crasse coriacea hypodermate distincto sclerenchymatico, facie inferiore praeter costam elevatam in sicco plana enervia v. fere plana nervis lateralibus tantum visibilibus.
    Folia subtus distincte albo-pruinosa. Ramuli juniores rotundati flavescentes.
      Ovula 2–4; fructus pruinosi, estylares . . . . . *B. pruinosa.*[1]
    Folia subtus tantum pallidiora, viridescentia v. species alio modo diversa.
      Fructus albo-pruinosi.
        Folia majora ovata v. ovato-oblonga, ad 4:1.7 cm. magna, dentibus utrinque circiter 8(–12) instructa. Petalorum glandulae ut videtur minimae . . . . . *B. Bergmanniae*, p. 362.
        Folia majora late lanceolata, ad 8.5:1.2 magna, dentibus utrinque 13–20 instructa. Petalorum glandulae distincte elongatae. *B. Julianae*, p. 360.
      Fructus epruinosi (nigrescentes).

[1] **Berberis pruinosa** Franchet in *Bull. Soc. Bot. France*, XXXIII. 387 (1886). — Schneider, *Ill. Handb. Laubholzk.* I. 301, fig. 196 a–d′ (1904).
China: Yunnan.

Folia lanceolata, majora ad 12:1.8 cm. magna, subtus fere v. omnino enervia, dentibus satis distantibus (circiter 3 pro 1 cm.) *B. levis*, p. 360.
Folia ovato-lanceolata v. elliptico-lanceolata dentibus valde approximatis v. ovato-elliptica et subtus non enervia.
Folia ovato-lanceolata v. elliptico-lanceolata, anguste spinoso-serrata (dentibus circiter 6 pro 1 cm.) . . *B. Ferdinandi-Coburgii*, p. 364.
Folia ovato-elliptica, dentibus distantibus . . . . . *B. barandana*.[1]
Folia coriacea, hypodermate pseudoepidermali (interdum difficile visibili), facie inferiore nervis lateralibus distinctius elevatis.
Ovula plerumque singula, fere semper funiculo longo distincto suffulta. *B. Wallichiana*.[2]
Ovula 1–3, sessilia v. subsessilia.
Folia permagna ad 19:5.7 cm. plerumque solitaria v. bina, dentibus 6–10 mm. inter se distantibus . . . . . *B. insignis*.[3]
Folia maxima minora, semper ad 3–5-fasciculata.
Folia parva v. mediocria, raro ad 7:1.5 cm. magna, dentibus distantibus. Ramuli juniores sulcato-angulati. Fructus ut videtur stylares. *B. Griffithiana*, p. 364.
Folia majora, ad 13.5:3 cm. magna, anguste duplicato-spinoso-dentata, subtus reticulo nervorum satis distincto. Fructus estylares. *B. Sargentiana*, p. 359.
Facies superior foliorum hypodermate pertinente haud instructa, folia plus minusve tenuiter coriacea.
Folia majora v. longiora plus quam 2.5 cm. longa, subtus nunquam albo-pruinosa.
Folia facie inferiore (et etiam superiore) angustissime reticulata, margine angustissime et gracillime inaequaliter spinoso-serrata (dentibus pro 1 cm. circiter 6–9) . . . . . *B. arguta*.[4]
Folia alio modo reticulata v. serrata.
Ovaria ovulo singulo funiculo distincto elongato suffulto instructa. Folia lanceolata, ad 7:1.8 cm. magna, utrinque laxe reticulata. Ramuli juniores valde sulcati . . . . . *B. Wallichiana*, var. *microcarpa*.[5]

[1] **Berberis barandana** Vidal, *Revis. Pl. Vasc. Filip.* 45 (1886).
Philippine Islands.

[2] **Berberis Wallichiana** De Candolle, *Prodr.* I. 107 (1824). — Hooker f. & Thomson, *Fl. Ind.* 225 (1885). — Hooker f., *Fl. Brit. Ind.* I. 110 (1875). — Schneider, *Ill. Handb. Laubholzk.* I. 304, fig. 196 n–p (1904), II. 916 (1912); in *Bull. Herb. Boissier*, sér. 2, V. 402 (1905).
Eastern Nepal to Assam.

[3] **Berberis insignis** Hooker f. & Thomson, *Fl. Ind.* 226 (1855). — Hooker, *Fl. Brit. Ind.* I. 111 (1875).
Himalaya: Sikkim.

[4] **Berberis arguta** Schneider in *Bull. Herb. Boissier*, sér. 2, VIII. 197 (1908); *Ill. Handb. Laubholzk.* II. 916, fig. 574 c (1912).
Berberis Wallichiana, f. *arguta* Franchet, *Pl. Delavay*. 38 (1889).
China: Yunnan.

[5] **Berberis Wallichiana, var. microcarpa** Hooker f. & Thomson, *Fl. Ind.* 225 (1855). — Hooker f., *Fl. Brit. Ind.* I. 111 (1875). — Schneider in *Bull. Herb. Boissier*, sér. 2, V. 402 (1905).
Assam and Burma.

Ovaria ovulis 1–4 sessilibus vel subsessilibus instructa.
Folia permagna, 9–18 cm. longa et 1.5–3.3 cm. lata, longe acuminata, breviter spinuloso-dentata dentibus vix 1 mm. longis distantibus. Ramuli juniores flavescentes, rotundati . . . . . *B. acuminata*.[1]
Folia etiam maxima vix plus quam 10 cm. longa v. alio modo diversa.
Folia satis parva, ovata v. ovato-oblonga, 3.3–5.5 cm. longa et 1–1.8 cm. lata subtus laxe reticulata, breviter spinoso-dentata. Fructus estylares . . . . . *B. Delavayi*, p. 364.
Folia majora v. lanceolata.
Ramuli juniores striato-sulcati, flavescentes.
Folia ovato-lanceolata, majora ad 9:2.2 cm. magna, margine graciliter breviter spinoso-denticulata. Pedicelli 1.8–2.2 cm. longi. *B. subacuminata*, p. 363.
Folia lineari-lanceolata, majora ad 6:0.5 cm. magna, margine dentibus satis crassis et approximatis dentata. Pedicelli 6–15 mm. longi . . . . . *B. sanguinea*, p. 359.
Ramuli juniores plus minus rotundati, flavescentes v. rubescentes.
Ramuli hornotini rubescentes, glabri. Ovula 1–3.
Folia lineari-lanceolata, ad 6.5:0.8 cm. magna, margine dentibus gracilibus distantibus serrata *B. triacanthophora*, p. 358.
Folia lanceolata v. anguste ovato-lanceolata, ad 11.5:1.9–2.4 cm. magna, margine spinis 2–3 mm. longis dentata. *B. Veitchii*, p. 363.
Ramuli hornotini flavescentes, plerumque minime verruculosi. Ovula 4. Folia lanceolata, ad 7: 1.5 cm. magna, graciliter et satis angustes pinoso-serrata . . . . *B. Gagnepainii*, p. 358.
Folia majora v. longiora vix plus quam 2.5 cm. longa v. subtus distincte albo-pruinosa.
Folia subtus viridia v. tantum leviter, non albo-pruinosa. Flores 1–3, longiuscule pedicellati.
Ramuli teretes, distincte verruculosi. . . . . *B. verruculosa*, p. 357.
Ramuli striato-sulcati, sublaeves . . . . . *B. Asmyana*, p. 357.
Folia subtus distincte alba. Ramuli glabri, rotundati. Flores singuli, breviter pedicellati . . . . . *B. candidula*, p. 357.

Sect. TINCTORIAE Schneider.

Berberis Francisci-Ferdinandi Schneider, n. sp.

Frutex 2–3-metralis; ramuli juniores rubri, deinde purpurascentes, glabri, leviter nitentes et angulati, vetustiores cinerascentes; internodia 2–3.5 cm. longa; spinae plerumque simplices, parvae v. ad 2.5 cm. longae, subtus sulcatae, flavo-rubrae; folia ad 6 fasciculata; chartacea, decidua, ovata v. ovato-lanceolata, utrinque acuta, basi satis subito in petiolum distinctum 0.5–1.5 cm. longum contracta, supra viridia, subtus claro-viridia, utrinque levissime nitentia et

[1] **Berberis acuminata** Franchet in *Bull. Soc. Bot. France*, XXXIII. 387 (1886). — Schneider, *Ill. Handb. Laubholzk.* II. 916 (1912).
China: Yunnan.

eodem modo laxe elevato-reticulata, petiolo excluso 2:1–7:3.2 cm. magna, toto margine spinoso-dentata spinis 1–1.5 mm. longis, raro subintegra. Inflorescentiae paniculatae (v. elongato-paniculato-racemosae), 5.5–12 cm. longae (pedunculo nudo ad 2 cm. longo incluso), multiflorae, glabrae; flores flavi, circiter 7–9 mm. diam.; pedicelli fructiferi ad 10 mm. longi, rubescentes, basi bracteis lineari-bus acuminatissimis (2–)3 mm. longis suffulti; prophylla anguste lanceolata, acuminata, rubra, bracteis similia; sepala tribus seriebus disposita, late ovata, exteriora quam infima duplo breviora; petala oblanceolata, sepalis infimis paullo longiora, apice bifida, basi breviter unguiculata, glandulis 2 normaliter obtecta; stamina quam petala duplo minora, normalia, leviter apiculata; ovaria estylosa, ovulis 2 subsessilibus instructa. Fructus satis magni, scarlatini, ovati v. elliptici, circiter 12:7 mm. magni; semina 2.

Western China: Mao-chou, thickets, alt. 1300–2300 m., June and October 1908 (No. **1180**, type); Fei-yueh-ling, Ching-chi Hsien, thick-ets, alt. 2600 m., May 1908 (No. 2869; with very young inflorescences); alt. 3400–4000 m., May 1904 (Veitch Exped. No. 3151; bush 1.25 m. tall).

A rather striking species, apparently most nearly related to the Himalayan *B. chitria* Lindley, which is well distinguished, however, by its puberulous branchlets, the longer stalked and numerous ovules and by the distinct styles.

I take the liberty of dedicating this handsome species to His Imperial and Royal Highness Archduke Franz Ferdinand of Austria, the High Protector of the Den-drological Society of Austria and Hungary.

Sect. INTEGERRIMAE Schneider.

Berberis Caroli Schneider, var. **hoanghensis** Schneider in *Bull. Herb. Boissier*, sér. 2, V. 459 (1905).

Western Szech'uan: upper Min valley, Sungpan, alt. 3000 m., October 1910 (No. **4022**; bush 1.30–2 m. tall, fruit salmon-red); with-out locality, alt. 4000–4500 m., forming hedges, October 1903 (Veitch Exped. No. 3157; bush 1.5–3 m.).

Sect. SINENSES Schneider.

Berberis Wilsonae Hemsley in *Kew Bull. Misc. Inform.* 1906, 151; in *Bot. Mag.* t. 4814 (1912).

Western Szech'uan: Mongkong Ting, alt. 2300–3000 m., June and October 1908 (No. **1356**, in part; bush 0.30–1.30 m. high, flowers

yellow, fruit coral-red); Tachien-lu, thickets, alt. 2600–3000 m., July and October 1908 (No. **1356**, in part; flowers golden, fruit coral-red); Wa-shan, alt. 2000 m., June 1908 (No. **1356**, in part); near Sungpan, Min valley, alt. 2600–3000 m., August 1910 (No. **4635**; bush 0.60–1 m. high, flowers yellow), roadsides, alt. 2400 m., August 1903 (Veitch Exped. Nos. 3147, 3154; shrub 0.25–1.25 m. tall).

Pictures of this shrub will be found under Nos. 242 and 243 of the collection of Wilson's photographs and also in his *Vegetation of Western China*, Nos. 131 and 132.

Berberis subcaulialata Schneider in Fedde, *Rep. Nov. Sp.* VI. 267 (1909).

Western Szech'uan: Mupin, thickets, alt. 2000–2300 m., October 1908 (No. **1267**; bush 0.60–1.30 m. high, fruit coral-red).

Wilson's specimen exactly agrees with the type.

Berberis thibetica Schneider in Fedde, *Rep. Nov. Sp.* II. 268 (1909); *Ill. Handb. Laubholzk.* II. 920 (1912).

Western Szech'uan: Tachien-lu, thickets, alt. 3200–3400 m., October 1910 (No. **4385**; bush 1.5–2 m. tall, fruit red). Here belongs possibly the following specimen: west of Tachien-lu, alt. 3300 m., September 1908 (No. **1282**; bush 1–2.60 m. tall, fruit salmon-red).

I am not quite sure whether No. 4385 really belongs to *B. thibetica*, which is very similar in the shape of the leaves and in the inflorescence. Unfortunately Wilson's specimen is imperfect and lacks very young branchlets. Of *B. thibetica* I only have before me rather luxuriant cultivated flowering specimens and I have seen but one fruit. The fruits of No. 4385 seem to be somewhat smaller, and some of the leaves bear 1–4 short spines on each side towards the apex.

Wilson's No. 1282 consists of old, gray, somewhat angulate, fruiting branches; the inflorescences and fruit rather resemble those of No. 4385, but the leaves of No. 1282 are more lanceolate, rather acute and distinctly spinose-dentate with 3–5 short pungent spines on each side. I cannot decide if this is only a variety of *B. thibetica* or if it represents a distinct species.

Berberis Boschanii Schneider, n. sp.

Frutex 2–2.5 m. altus; ramuli annotini purpurascentes, divaricati, angulati, glabri, subnitentes, vetustiores cinereo-brunnescentes v. cinerascentes; internodia 1 cm. longa; spinae 1–3-fidae, flavo-brunneae, mediae ad 2 cm. longae, subtus esulcatae. Folia (ramulorum fructiferorum) ad 4 fasciculata, satis crasse membranacea, ovato-lanceolata v. oblanceolata, apice subacuta, leviter mucronulata, basi in petiolum 1–2 cm. longum contracta, 0.6:0.3 ad 1.7:0.6 cm. magna, supra viridia, vix v. paullo nitentia, fere enervata, subtus concoloria, distinctius nitentia, laxe sed satis indistincte nervata, margine integerrima.

Inflorescentiae fructiferae racemosae, glabrae, nutantes, circiter 5–8-florae, ad 3 cm. longae; flores ignoti; pedicelli 3–7 mm. longi, basi bracteis triangularibus acuminatis circiter 1 mm. longis suffulti. Fructus corallini, ut videtur leviter pruinosi, ovato-rotundi, circiter 6:4–4.5 mm. magni, stigmatibus sessilibus; semina 2.

Western Szech'uan: Mao-chou, Min valley, alt. 1600–2000 m., October 1908 (No. **1166**, type). The following number may be the same: Min valley, alt. 2200 m., September 1904 (Veitch Exped. No. 3156; bush 1–2 m. tall, fruit scarlet).

This species is most nearly related to *B. thibetica*, which differs in the pruinose, not shining under surface of the leaves, and in its larger fruit with short style. Unfortunately the flowers of this new species have not been collected.

This species is named in honor of Mr. Louis von Boschan, the vice-president of the Dendrological Society of Austria and Hungary.

I cannot yet say whether the two following species belong to this section or to a new one, intermediate between the *Sinenses* and *Heteropodae*.

Berberis Silva-Taroucana Schneider, n. sp.

Frutex 1.50–3 m. altus, ut videtur habitu *B. heterophyllae;* ramuli glabri, juniores sulcati, fuscescentes, vetustiores rotundati, cinerascentes; internodia 2–3 cm. longa; spinae ramulorum floriferorum 1-fidae, debiles, vix 6 mm. longae, v. nullae; folia ad 6 fasciculata, papyracea, oblongo-lanceolata v. obovato-oblonga, apice rotunda v. obtusa, tenuiter mucronulata, basim versus subito in petiolum ad 13(–25) mm. longum contracta, 1.5:0.7 cm. ad 5.5:2.5(–2.8) cm. v. 5:3.5 cm. petiolis exclusis magna, margine integra v. utrinque dentibus tenuibus brevibusque 1–10 instructa, supra viridia, subtus pallida, pruinosa, sed non papillosa, utroque latere laxe sed distincte reticulata. Inflorescentiae laxe racemosae, sessiles v. breve-pedunculatae, (6–)9–12-florae, 3–7 cm. longae; flores flavae, satis parvae (circiter 6–8 mm. diam.); pedicelli 0.8–2 cm. longi, basi bracteis minutis vix 1.5 mm. longis triangulari-acuminatis instructi; prophylla minute ovata; sepala interiora late ovata petalis ovatis glanduliferis apice raro incisis paullo majora; stamina apice paullo apiculata, petalis breviora; ovaria ovulis 2 fere sessilibus instructa; fructus ovato-globosi, rubri ("scarlet" Wilson) verisimiliter leviter pruinosi, ad 9:7–8 mm. magni, stigmatibus sessilibus coronati; semina matura 1–2.

Western Szech'uan: Chiu-ting-shan, thickets, alt. 2000 m., May 23, 1908 (No. **2860**, type); west of Kuan Hsien, summit of Niu-tou-

shan, alt. 3300 m., June 25, 1908 (No. **2857**); Pan-lan-shan, west of Kuan Hsien, alt. 2600–3000 m., October 1910 (No. **4288**); Wa-shan, thickets, alt. 2600 m., June and September 1908 (Nos. **2858, 955**); west and near Wên-ch'uan Hsien, woodlands, alt. 2000–3000 m., July and September 1908 (Nos. **1012, 1059**); Mupin, thickets, alt. 1600–2800 m., June, July and September 1908 (Nos. **2861, 1012**[a]); west and near Wênch'uan Hsien, thickets, alt. 1600 m., July 1908 (No. **2867**; a form with few-flowered, fasciculate-racemose inflorescences); without locality, September 1904 (Veitch Exped. No. 3151[a]; fruiting branches); Mt. Omei, June 1904 (Veitch Exped. No. 4726).

This species seems nearly related to the little known *B. Tschonoskyana* Regel from Japan of which I have not yet seen the young branches. Especially No. 2867 looks very like the Japanese form, as described by Regel in *Act. Hort. Petrop.* II. 421 (1873) and as *B. sikokiana* by Yatabe, in *Tokyo Bot. Mag.* V. 283, (1891). At first sight this new species also resembles *B. Tischleri* Schneider which differs chiefly in having 4 ovules and an elongated fruit with a distinct style.

Named in honor of His Excellency Count Ernst Silva Tarouca, the president of the Dendrological Society of Austria and Hungary, a famous garden maker and plant lover, to whom I am much indebted for assistance.

Berberis Mouillacana Schneider, n. sp.

Frutex 1–3-metralis; ramuli annotini et biennes purpurascentes, glabri, angulato-sulcati, vetustiores cinerascentes; internodia 1–2.5 cm. longa; spinae simplices, ramulorum juniorum ad 1.8 cm. longae, flavescentes, rotundatae; folia ad 6 fasciculata, crasse membranacea, obovato-lanceolata, apice obtusa v. rotunda, minime mucronulata, basi plus minusve subito in petiolum distinctum 1–15 mm. longum contracta, laminis 1:0.4 ad 2.5:1.4 cm. v. 3.5:1.7 ad 6:1.9 cm. magnis, supra viridia, vix nitentia, subtus concoloria et nitentia raro leviter pruinosa, utrinque, sed subtus distinctius, laxe reticulata, margine integra v. raro dentibus brevissimis distantibus utrinque ad 8 instructa. Inflorescentiae fructiferae plerumque distincte racemosae, versus apicem ramorum interdum fasciculato-racemosae, 6–12-florae, ad 4.5 cm. longae, glabrae; flores nondum vidi; pedicelli 0.5–1.3 cm. longi, basi bracteis triangulari-acuminatis acutissimis, 1.5–2 mm. longis suffulti. Fructus rubri ("scarlet or crimson" Wilson) leviter pruinosi, ovato-elliptici, circiter 8–10 ad 5–7 mm. magni, stigmatibus sessilibus; semina (1–)2.

Western Szech'uan: Tachien-lu, thickets, alt. 2700–3600 m., September and October 1908 (Nos. **1039**, type, **1041, 1283**); same locality, uplands, alt. 2700–3000 m., October 1910 (No. **4123**).

This species appears to be most nearly related to *B. Silva-Taroucana* Schneider, which chiefly differs in the pruinose not shining under surface of the leaves, in its more irregularly racemose inflorescences and in its longer pedicels. Further investigations are necessary, however, to decide whether *B. Mouillacana* must be considered as a variety of *B. Silva-Taroucana*.

At the request of Mr. Wilson I have named this species for Dr. Mouillac, a distinguished French army surgeon, at one time in charge of the École de Médecine & R. C. Hospital, Chengtu, in appreciation of valued service rendered to him during the autumn of 1910.

The following description and notes are based on material not collected in the Arnold Arboretum Expeditions.

Berberis Poiretii Schneider in *Mitt. Deutsch. Dendr. Ges.* XV. 180 (1906).

Berberis sinensis Schneider in *Bull. Herb. Boissier*, sér. 2, V. 655 (non Poiret, nec Desfontaines) (1905).

Berberis sinensis, β. *angustifolia* Regel in *Act. Hort. Petrop.* II. 2, 416 (1873).

Manchuria: Sheng-king, Mukden, May 28, 1906, *F. N. Meyer*, (No. 121).

Berberis Poiretii, f. **weichangensis** Schneider, n. forma.

A typo recedit spinis inferioribus 3-fidis, bracteis plerumque paullo brevioribus.

Northern Chili: east Weichang, 1909, *W. Purdom* (Nos. 2, type, and 35, in part).

I cannot find any other difference between the type and this form of northern Chili, but there is another flowering branch on the same sheet with No. 35, of which all the leaves are distinctly serrate, while the flowers are quite like those of the other branch, which cannot be separated in any way from No. 2. The leaves of the serrate form resemble perfectly those of the following species, which possibly may be only a variety of *B. Poiretii*.

Berberis Purdomii Schneider, n. sp.

Frutex metralis, ut videtur habitu *B. Poiretii;* ramuli glabri, leviter sulcati v. fere teretes, paullo divaricati, juniores fuscescentes, vetustiores cinerascentes; internodia 1.5–2 cm. longa; spinae 1–3-fidae, graciles v. majores, mediae ad 1.5 cm. longae, flavescentes, acutae, subtus sulcatae (in No. 345 spinae robustiores, ad 2 cm. longae). Folia ad 12 fasciculata, lanceolata, apice acuta, basim versus sensim in petiolum brevem decurrentia, 1:0.4 ad 4:0.8 cm. magna (in No. 345 folia majora, obovato-lanceolata, ad 4:1.3 cm. magna), utrinque fere concoloria et pari modo satis laxe sed distincte reticulata, margine graciliter spinuloso-dentata, dentibus utrinque 0.5–1.5 mm. longis 5–15 instructa. Inflorescentiae valde juveniles, cum pedunculo nudo 1.5 cm. longo ad 3 cm. longae, glabrae, flores nondum evoluti bracteis lineari-lanceolatis 2 mm. longis acuminatis stipitati; ovaria ovulis ut videtur 2 sessilibus instructa.

Shensi: south Yenan Fu, 1910, *W. Purdom* (No. 3); same locality (No. 345; 3 ft. tall).

Without having seen fully developed flowers it is impossible to say, whether the branch of Purdom's No. 35 of North Chili, Weichang, mentioned under *B. Poiretii*, var. *weichangensis* Schneider may not belong to *B. Purdomii*. This species certainly is very closely related to *B. Poiretii*, but the leaves of *B. Purdomii* are serrate and show a more distinct nervation on both sides.

Berberis Vernae Schneider, n. sp.

Frutex 0.75–1.5 m. altus; ramuli glabri, satis sulcati, annotini biennesque purpurascentes, deinde cinerascentes, lenticellis nigris plus minusve conspersi; inter-

nodia 1–2 cm. longa; spinae plerumque simplices, versus apicem ramulorum floriferorum breves, sed variabiles, interdum ad 3 cm. longae, rigidae, applanatae, flavescentes, subtus leviter sulcatae. Folia ad 8 fasciculata, in eodem fasciculo valde inaequalia, spathulata v. oblanceolata, tenuia, apice obtusa, tantum mucronulata, raro acuta, basim versus in petiolum brevem decurrentia v. sessilia, fere semper integerrima, supra viridia, laxe reticulata, subtus vix pallidiora, pari modo reticulata, minima 8:3 mm., majora ad 2.5:0.8 cm., maxima ad 4:1.2 cm. magna, haec interdum spinoso-denticulata, dentibus utrinque 6–8. Inflorescentiae densiflorae, graciles, pedunculo nudo 0.5–1 cm. longo incluso 1.5–4 cm. longae, nutantes, glabrae; flores lutei, minimi (circiter 3–4 mm. diam.); pedicelli 2–3 mm. longi, basi bracteis acuminatis aequilongis v. subaequilongis instructi; prophylla minuta lanceolata; sepala ovata, obtusa; petala oblonga, subacuta v. apice incisa, sepalis aequilonga v. sublongiora, basi normaliter glandulifera; stamina normalia, petalis duplo minora; ovaria staminibus aequilonga, ovulis 2 (v. interdum 1 ?) sessilibus instructa, estylosa. Fructus ut videtur rubri, globosi, (circiter 4–5 mm. diam.); tantum unum vidi.

West Kansu: Min-chou, alt. 3200–3600 m., *W. Purdom.*

This species differs from *B. Poiretii* Schneider and its varieties by its stronger simple spines, by its very small flowers and fruits and by its two-ovuled ovaries. It seems most closely related to *B. Purdomii* Schneider, of which I have only seen branches bearing very young flowers with all the leaves serrate. *Berberis Vernae* possibly may belong to the section Integerrimae.

The species is named in compliment to Miss Verna Berger of La Mortola.

There is another remarkable, but incomplete specimen from Weichang among Purdom's collection (without No., Chinese collectors). It bears very young inflorescences and the axes of some old ones. The specimen is very peculiar. The branches are apparently from an old shrub; the leaves are entire, narrowly spatulate and up to 4 cm. long and 8 mm. broad; the racemes are borne on naked peduncles up to 2 cm. long, they show a tendency to become paniculate in their lower part and the lowest flower of each raceme is subtended by a leaf, a feature I have never observed so far; the old inflorescences are about 8 cm. long. It seems to be a new species which at present cannot be exactly determined; I hardly believe that it is a monstrosity.

Berberis Lecomtei Schneider, n. sp.

Berberis sinensis, var. *typica* Franchet, *Pl. Delavay.* 35 (1889).
Berberis Thunbergii, var. *glabra* Franchet, l. c.

Frutex ad 2-metralis; ramuli annotini et biennes purpurascentes, glabri, angulati, vetustiores cinereo-brunnescentes v. cinerascentes; internodia 1.3–2.6 cm. longa; spinae 1–3-fidae, graciles, flavo-brunneae, mediae ad 1.8 cm. longae. Folia ad 6 fasciculata, tenuiter membranacea, oblanceolata v. lanceolata, apice obtusa, sed mucronulata, basim versus in petiolum 2–5 mm. longum sensim attenuata, integerrima, supra viridia, subtus cinereo-pruinosa (v. leviter virescentia?), utrinque tantum costa nervisque lateralibus laxe subreticulata, 1.3:0.4 cm. ad 3.2:0.8 cm. magna. Inflorescentiae breves fasciculato-racemosae v. elongatae umbellato-racemosae, cum pedunculis ad 1–2 cm. longis ad 4 cm. longae, glabrae, (3–)6–10-florae; flores flavi, satis parvi (circiter 6–8 mm. diam.); pedicelli graciles, 0.8–1.3 cm. longi; basi bracteis breviter acuminatis, 1 mm. longis suffulti; prophylla ovato-lanceolata, acuta; sepala exteriora late ovata sepalis interioribus late ovatis v. obovatis fere duplo minora; petala sepalis interioribus aequilonga v. fere longiora, obovata, apice ut videtur incisa, basi breviter unguiculata, glandulis

normalibus instructa, stamina normalia (v. breviter apiculata), ovaria ut videtur estylosa, ovulis 1–2 sessilibus instructa. Fructus nondum vidi.

Yunnan: "in silvis ad collum Koua-la-po (Ho-kein)," alt. 3000 m., fl. 26 maj. 1884, *Delavay* (No. 1047, type); "in collibus ad collum Yen-tze-hay (Lan-kong)," alt. 3000 m., fl. jun. 1886, *Delavay* (No. 2447); "in silvis Kou-toui, supra Mosogyn," alt. 3000 m., fl. 17 maj. 1887, *Delavay*.

The first two specimens represent the type of Franchet's *B. sinensis typica*, the last is the type of Franchet's *B. Thunbergii*, var. *glabra*. In *Bull. Herb. Boissier*, sér. 2, VIII. 204 (1908) I have already stated that these two forms of Franchet may belong to one species. Indeed they differ only in this that Nos. 1047, 2447 have more fasciculate racemes and apiculate stamens, while the specimen from Kou-toui has more elongated and umbellulate racemes and non-apiculate anthers. Unfortunately I have not yet seen any fruiting specimen. There is a *Berberis* cultivated under No. 3499 in the Arnold Arboretum, raised from seeds collected by Delavay in Yunnan, which in many respects seems to agree well with *B. Lecomtei*. The leaves of No. 3499 scarcely differ from that of our new species, but in the fruiting branches they are more broadly obovate, measuring from 2:0.8–1.3 cm. to 3:1.2 cm. The inflorescences of No. 3499 are mostly distinctly stalked and umbellulate-racemose. The flowers do not show any marked difference from that of No. 1047. The fruits are red, slightly pruinose, round-ovate with sessile stigmas, they contain two seeds. This cultivated form from Yunnan possibly may belong to *B. Lecomtei*, which seems to be rather nearly related to the Japanese *B. Thunbergii*.

The name is given in honor of Professor Lecomte, the Director of the botanical department of the Museum d'Histoire Naturelle, Paris.

Sect. VULGARES Schneider.[1]

Berberis dictyoneura Schneider, n. sp.

Frutex 1.60–2 m. altus; ramuli juniores nondum visi, vetustiores cinerei, angulati, leviter divaricati; internodia 1.6–2.3 cm. longa; folia (ramulorum fructiferorum) ad 7 fasciculata, membranacea, ovata, apice subacuta, basi satis subito in petiolum 2–6 mm. longum contracta, lamina 1:0.5 ad 3:1.4 cm. magna, utrinque fere concoloria, nitentia, eodem modo distinctissime anguste reticulata, margine dense fere duplo spinoso-dentata spinis distantibus majoribus fere ad 2 mm. longis. Inflorescentiae racemosae v. fasciculato-racemosae, circiter 6-florae, 2–3 cm. longae, glabrae, pedicelli 0.8–1.4 cm. longi, basi bracteis triangularibus, acuminatissimis, 1.5 mm. longis suffulti; flores non vidi. Fructus immaturi obovati, 7–8 mm. longi et 4–5 mm. lati, stigmatibus sessilibus; semina 2, sessilia.

Western Szech'uan: Min valley, near Sungpan, roadsides, alt. 2600–3000 m., August 1910 (No. 4633).

[1] For lack of some important type specimens I have not been able to determine all the material belonging to this group. I expect to give supplementary notes in the second volume of this work.

This interesting plant, of which I have only seen a small branch with immature fruits, is readily distinguished by the reticulation and dentation of its leaves. It seems most nearly allied to *B. dubia* Schneider in *Bull. Herb. Boissier*, sér. 2, V. 663 (1900); VIII. 259 (1908) from western Mongolia and Kansu, which differs chiefly in the somewhat different reticulation and dentation of the smaller leaves and in the shorter pedicels.

Berberis brachypoda Maximowicz in *Bull. Acad. Sci. St. Pétersbourg*, XXIII. 308 (1877); *Fl. Tangut.* 30. t. 7, fig. 8–13 (1889). — Schneider in *Bull. Herb. Boissier*, sér. 2, V. 664 (1905); VIII. 262 (1908).

Western Hupeh: Hsing-shan Hsien, woodlands, alt. 1300–1600 m., June and November 1907 (No. **554**; bush 1.30–2 m. high, flowers yellow, fruit scarlet); upland thickets, Fang Hsien, alt. 3200–3600 m. (No. **4416**; bush 1.25–2 m. tall, fruit scarlet); without locality, June 1901 (Veitch Exped. No. 1915).

The inflorescence is sometimes somewhat paniculate near the base. The fruits are elliptic, up to 11 mm. long and 6 mm. across with a sessile stigma.

Here may be added the two following species collected by Mr. Purdom.

Berberis amurensis Ruprecht, in *Bull. Acad. Sci. St. Pétersbourg*, XV. 216 (1857).

Northern Chili: Weichang, 1909, *W. Purdom* (No. 34).

Berberis Gilgiana Fedde in *Bot. Jahrb.* XXXVI. Beibl. LXXXII. 43 (1905). — Schneider in *Bull. Herb. Boissier*, sér. 2, VIII. 262 (1908).

Shensi: Tai-pei-shan, 1910, *W. Purdom* (Nos. 6, 8).

Purdom's specimens have the leaves somewhat broader and shorter and more rhombic-ovate, but I cannot find any other great difference in them.

Sect. POLYANTHAE Schneider.

Berberis aggregata Schneider in *Bull. Herb. Boissier*, sér. 2, VIII. 203 (1908); *Ill. Handb. Laubholzk.* II. 918 (1912).

Western Szech'uan: Pan-lan-shan, west of Kuan Hsien, side of streams, alt. 2600 m., June 21, 1908 (No. **2870**; bush 1–1.20 cm. high, flowers yellow); Min valley, thickets, alt. 1300–2300 m., October 1908 (No. **1050**; bush 0.60–1.20 m. high, fruit salmon-red); Mupin, thickets, alt. 2600–3000 m., October 1910 (No. **4286**; bush 1.60 m. high, fruit bright red).

The type was collected by Potanin in eastern Kansu "valle fl. Hei ho" and most of its inflorescences are distinctly compound, so it seems to be better to place this species in the Section *Polyanthae*.

Berberis polyantha Hemsley in *Jour. Linn. Soc.* XXIX. 302. (1892). — Schneider in *Bull. Herb. Boissier*, sér. 2, V. 815 (1905); VIII. 264 (1908).

Western Szech'uan: Tachien-lu, alt. 2600–3300 m., July and September 1908 (No. **1048**; bush 2–4 m. tall, flowers deep yellow); Min valley, north of Mao-chou, alt. 2900–3200 m., August 1910 (No. **4634**; shrub 1.0 m. tall, fruit salmon-red); valley of Hsao-chin-ho near Monkong Ting, alt. 2300–3000 m., June 1908 (No. **2872**; bush 2–3 m. tall, flowers yellow); without locality, July 1904 (Veitch Exped. No. 3152); without locality, *A. von Rosthorn* (No. 2527).

Berberis polyantha, var. **oblanceolata** Schneider, n. var.

A typo recedit praecipue foliis integris v. fere integris majoribus oblanceolatis ad 2.4 mm. longis et 6 mm. latis, minoribus obovatis v. ovalibus, inflorescentiis minoribus et angustioribus cum pedunculo 2.5–4 cm. longis.

Western Szech'uan: valley of Hsao-chin-ho near Monkong Ting, alt. 2300–3000 m., June 1908 (No. **2868**; decumbent bush, 1–1.60 m. tall, flowers deep yellow).

Berberis Prattii Schneider, n. sp.

Frutex 2–3-metralis; ramuli floriferi paullo hirtelli v. fere glabri, cinereo-brunnei, sulcati, internodia 2–3 cm. longa; spinae 1–3-fidae, satis debiles, mediocres ad 13 mm. longae, flavo-brunneae, acutae, subtus leviter sulcatae; folia ad 10 fasciculata, oblonga v. obovato-oblonga v. obovalia, apice rotunda v. leviter emarginata v. breviter acuta, mucronulata, basim versus in petiolum brevem subito contracta, sed lamina ad imam basim decurrente, margine integra v. utrinque supra mediam dentibus 1–9 satis parvis instructa, supra viridia, ut videtur nitentia, subtus pallidiora, papillosa, utrinque distincte et anguste elevato-reticulata, majora 2.5:1–1.5 cm. ad 4.5:1.5–2.5 cm. magna. Inflorescentiae paniculatae, elongatae, fructiferae ad 15 cm. longae, brevissime v. indistincte pilosae; flores flavi, parvi, circiter 5–6 mm. diam.; pedicelli 3–5 mm. longi, bracteis acuminatis, ad 3 mm. longis instructi; petala sepalis internis late ovatis vix breviora, obovato-oblonga, apice incisa, basi late unguiculata, glandulifera; stamina apice apiculata, petalis breviora; ovaria ovulis 2 sessilibus instructa. Fructus salmoneo-rubri, verisimiliter pruinosi, ut videtur globosi, parvi, circiter 6:6 mm. magni, stylo distincto sed brevi coronati; semina 2.

Western Szech'uan: south-east of Tachien-lu, thickets, alt. 2600–2800 m., June and October 1908 (Nos. **1261**, type, **1300**); Tachien-lu, uplands, alt. 2800–3400 m., October 1910 (No. **4173**; bush 1.5–2 m. high, fruit salmon-red); Mupin, thickets, alt. 2000 m., October 1908 (No. **1050**[a]); without locality, 1904 (Veitch Exped. No. 3152[a]).

To this species also belongs Wilson's No. 1320 ex Hort. Veitch. In his *B. polyantha*, Hemsley has mixed two different species. The true *B. polyantha* is represented by Pratt's Nos. 206 and 704, but Pratt's No. 80 is quite different and belongs to this new species. *Berberis polyantha* has much thicker leaves with a very fine and narrow reticulation; the inflorescences are broader and looser, the bracts shorter and the elliptical dried fruits are swollen and bear a rather long style.

Berberis Prattii seems also nearly related to *B. brevipaniculata* Schneider in *Bull. Herb. Boissier*, sér. 2, VIII. 263 (1908), which was collected by Henry, Ichang, May 1888 (No. 4675). But the last named species differs in its glabrous branches and inflorescences, its smaller leaves, which are distinctly glaucous and papillose beneath and in its shorter panicles and bracts.

Berberis Prattii, var. **recurvata** Schneider, n. var.

A typo recedit inflorescentiis spiciformibus pedicellis fructiferis distincte reflexis.

Western Szech'uan: Mupin, thickets, alt. 2000–2500 m., June and October 1908 (No. **1073**).

I cannot find any other difference between this variety and the type, but the narrow inflorescences of the fruiting specimen with the curved pedicels are remarkable. The shape of the rather small leaves is the same as it is in those of No. 1261 (*B. Prattii typica*).

Sect. Incertae.

Berberis Liechtensteinii Schneider, n. sp.

Frutex 1–1.5 m. altus; ramuli annotini purpurascentes, glabri, lenticellis minimis crebris obtecti, angulato-striati v. subsulcati vetustiores cinerei; internodia 1–1.8 cm. longa; spinae 1–3-fidae, valde evolutae, mediae ad 4 cm. longae, rotundatae, subtus anguste sulcatae, purpurascentes; folia ad 3 (an plura?) fasciculata, crasse membranacea, decidua, lanceolata, ovata v. obovato-oblonga, sinuato-spinosa, spinis utrinque 1–4, v. minora integra, tantum apice acuta, spinosa, basim versus sensim attenuata, vix v. non petiolata, ramulorum floriferorum 1:0.4 ad 2.5:1 cm., fructiferorum v. sterilium 2.5:1.3 ad 6:2.2 cm. magna, supra viridia, fere nitentia, hypodermate non instructa, subtus pallidiora, in sicco praeter costam enervia v. nervis lateralibus vix visibilibus; inflorescentiae racemosae, pedicellis in-

fimis raro 2-floris, floriferae 2–3.5 cm., fructiferae ad 7 cm. longae, rubescentes, glabrae, 6–12-florae; flores pallide flavi, extus paullo rubescentes, mediocres (circiter 8–9 mm. diam.); pedicelli 4–12 mm. longi, basi bracteis lanceolatis acuminatis, circiter 1.5 mm. longis suffulti; prophylla late ovata, sepalis externis majoribus similia; sepala interna late obovata, petalis oblongis apice emarginatis basi vix unguiculatis glandulis parvis instructis paullo longiora; stamina normalia; ovaria ovulis 2 sessilibus. Fructus globosi, rubri, circiter 9 mm. crassi, stylis brevibus coronati; semina 2.

Western Szech'uan: Min valley, near Mao-chou, arid regions, alt. 1300–1900 m., May 26, 1908 (No. **2871**, type); Min valley, Mao-chou, alt. 2–2800 m., dry regions, November 1910 (No. **4154**); Min valley, 2200—3100 m., alt., September 1904 (Veitch Exped.).

A very remarkable species, which may bear some relation to *B. Potanini* Maximowicz (*B. sphalera* Fedde) from Shensi and Kansu, of which the systematic position is yet unknown. *B. Potanini* seems to be well distinguished by its lanceolate, smaller, coriaceous leaves, containing a hypoderm, and by its shorter inflorescence.

Our new species is dedicated to His Most Serene Highness Prince Johann II. of Liechtenstein, to whom the author feels himself much indebted for help in his dendrological studies.

MAHONIA L.

Mahonia Zemanii Schneider, n. sp.

Frutex 0.75–1.25 m. altus. Folia circiter 7-juga, ad 35 cm. longa, jugo infimo basi petioli magnopere approximato minore, ima basi petioli stipulis 2 filiformibus instructa; foliola coriacea, supra viridia, vix v. non nitentia, subtus vix v. paullo pallidiora; tantum nervis primariis leviter elevatis distinctis, lateralia lanceolata, paullo obliqua, basi acuta, sessilia, apice breviter acuminata, minora 6–8:1–1.5 cm., majora ad 12:2.3 cm. magna, terminalia aliis similia, a medio ad apicem utrinque dentibus 4–6.2 mm. longis spinoso-dentata; juga inter se 2–4.5 cm. distantia. Inflorescentiae fructiferae ad 12 cm. longae; earum bracteae triangulari-acuminatae, membranaceae, circiter 15 mm. longae; flores nondum vidi; pedicelli fructiferi 3(–4) mm. longi, bracteis ovatis subacutis subaequilongis suffulti. Fructus nondum maturi ovato-globosi, 5–6 mm. longi, apice stylis ut videtur brevissimis coronati, ovulis 2 sessilibus instructi.

Western Hupeh: Patung Hsien, woods, alt. 1200 m., December 1907 (No. **2883**; bush 0.75–1.25 m. tall).

Mahonia Zemanii is a very distinct species, somewhat resembling in its lanceolate leaves *M. Fortunei* Lindley which, however, differs by having the lowest pair of leaflets further from the base of the petiole. Before having seen flowers and mature fruits it is very difficult to indicate the correct position of this interesting species. There is a specimen collected by Henry (No. 3351), consisting only of three leaves which are not unlike those of Wilson's specimen.

This species is named in compliment to Mr. Franz Zeman, head gardener of the Dendrological Society of Austria-Hungary in Pruhonitz, Bohemia.

Mahonia decipiens Schneider, n. sp.

Frutex 0.30–1.75 m. altus. Folia 3-juga, ad 20 cm. longa, ima basi petioli stipulis 2 filiformibus minimis instructa, jugo infimo minore, a basi petioli 2–4 cm. distante; foliola circiter 3–3.5 cm. inter se distantia, coriacea, supra ut videtur paullo nitentia, subtus verisimiliter opaca, viridia, nervis primariis laxe reticulatis paullo elevatis, lateralia oblique ovata, basi truncata, v. leviter cordata, breviter acuminata, margine utrinque spinis 2–6 sinuato-dentata, majora 4.5–6.5 cm. longa et 2.3–3.5 cm. lata, terminalia ovata, breviter acuminata, basi cuneato-rotunda v. subcordata, infra medium ad apicem utrinque spinis plerumque 4 sinuato-dentata, 6.5–8 cm. longa et 3–4.5 cm. lata. Inflorescentia racemosa, densiflora, brevis, ad 5 cm. longa; bracteae late triangulares, acutae, ad 1.5 cm. longae; flores flavi ?, circiter 6–7 mm. diam.; pedicelli 4–5 mm. longi, bracteis ovato-oblongis obtusis subaequilongis suffulti; sepala 3 externa minima late ovata, obtusa, 3 media majora, subaequiformia, 3 interna maxima, late ovato-oblonga; petala obovata, sepalis internis vix minora, apice incisa, basi breviter unguiculata, glandulifera; stamina petalis breviora, normalia; filamenta antheris paullo longiora; ovaria stylosa, ovulis 2 sessilibus. Fructus nondum vidi.

Western Hupeh: Changyang Hsien, woodlands, alt. 1500 m., April 1907 (No. 2884).

This species is apparently most nearly related to *M. nepalensis* De Candolle, but the Chinese form differs in its fewer leaflets, of which the lowermost pair is rather distant from the base of the petiole, in its very short racemes and in its fewer (only two) ovules. The material being scanty the species needs further investigation.

Mahonia nitens Schneider, n. sp.

Frutex 1–1.30 m. altus. Folia 5–7-juga, ad 25 cm. longa, ima basi petioli stipulas 2 filiformes minimas gerentia, jugo infimo minore basi petioli magnopere approximato; foliola circiter 3 cm. inter se distantia, coriacea, utraque pagina distincte nitida, fere concoloria, subtus nervis primariis laxe reticulatis, paullo elevatis, lateralia terminalibus

fere aequiformia, ovata, basi cuneata, integra, vix obliqua, apice longe acuminata, margine a medio ad apicem utrinque spinis 2 late triangularibus sinuato-dentata, circiter 6:2.5 cm. magna, infima paullo minora, terminalia paullo majora (ad 8:3.2 cm.). Racemi ad 14 cm. longi, satis densiflori, eorum bracteae satis parvae, late triangulares, breviter acutae, circiter 1:0.8 cm. magnae; flores extus rubescentes, circiter 6 mm. diam.; pedicelli 2–3 mm. longi, bracteis ovatis paullo v. vix longiores; sepala tantum 6, externa ovato-oblonga, internis similibus breviora; petala late oblonga, sepalis aequilonga, apice bifida, basi brevissime unguiculata, glandulifera; stamina petalis breviora, normalia; filamenta antheris paullo longiora; ovaria ovulis 2 sessilibus instructa. Fructus nondum vidi.

Western Szech'uan: Hungya Hsien, red sandstone cliffs, alt. 1100 m., September 1908 (No. **2881**).

Mahonia nitens is a very distinct species, resembling in its shining leaves *M. nepalensis* De Candolle which, however, belongs to a different group of this section.

Mahonia Fortunei Fedde, in *Bot. Jahrb.* XXXI. 130 (*Monog. Mahonia*) (1901).

Berberis Fortunei Lindley in *Jour. Hort. Soc. Lond.* I. 231, 300, fig. (1846).

Western Szech'uan: Yachou Fu, woodlands, alt. 500–800 m., September 1908 (No. **2882**; bush 0.60–1.30 m. tall, flowers yellow). Tao-thuashan-shu, 1891, *A. von Rosthorn* (No. 144, ex Fedde). Hupeh: 1888, *A. Henry* (No. 3117).

This is one of the most distinct species of this genus. The type was collected by Fortune (No. 32) near Shanghai, in gardens.

CONSPECTUS SPECIERUM ASIATICARUM ADHUC COGNITARUM.[1]

Fructus (v. ovaria) stylis distinctis coronati.
Jugum infimum mininum foliolorum basi petioli valde approximatum.
Foliola dentibus utrinque non plus quam 10 instructa.
Nervi primarii foliolorum subtus distincte elevati.
Foliola supra viridia, sed obscura, haud distincte nitentia.
Foliola ovata v. late ovata, v. in var. *Bealei* subrotunda, spinis utrinque 4–6 . . . . . 1. *M. japonica.*
Foliola ovato-lanceolata, spinis utrinque (5–)7–9 . . . 2. *M. flavida.*
Foliola lanceolata, spinis utrinque 4–6 . . . . . 3. *M. Zemanii.*

[1] Of *Mahonia trifurca* Loudon, *Encycl. Pl.* Suppl. II. 1346 (1842); Fedde, l. c. 125 (*Berberis trifurca* Lindley, in Paxton, *Flow. Gard.* III. p. 57, fig. 258 [1852/3]) I have not yet seen flowers or fruits.

Foliola supra nitidissima et plerumque etiam subtus nitentia, late-ovata v. ovato-lanceolata, spinis utrinque (3–)5–10 . . . 4. *M. nepalensis.*
Nervi primarii foliolorum subtus vix v. paullo elevati; foliola primo adspectu plana, valde discolora, ovato-lanceolata, spinis utrinque 5–7. 5. *M. Fordii.*
Foliola (superiora et majora) dentibus utrinque 9–26 instructa, dentibus inter se satis approximatis.
Inflorescentiae tantum 4–8 cm. longae, bracteae pedicellis aequilongae v. longiores, folia 4–6-juga.
Foliola supra opaca, superiora et majora spinis utrinque 14–26 instructa, 6 infima quam cetera dimidia v. tertia parte minora. Bracteae pedicellis aequilongae . . . . . 6. *M. polyodonta.*
Foliola supra nitentia, tantum 2 infima multo minora, cetera spinis utrinque 9–15 instructa. Bracteae pedicellis duplo longiores. 7. *M. Veitchiorum.*
Inflorescentiae 15–20 cm. longae, bracteae pedicellis dimidio breviores. Folia 7–8 juga . . . . . 8. *M. Duclouxiana.*
Jugum infimum foliolorum basi petioli satis distans.
Foliola coriacea, ovata v. late-ovata, spinis utrinque 2–6. Inflorescentiae breves, racemosae; bractea pedicellis subaequilongae; ovula 2 . . 9. *M. decipiens.*
Foliola membranacea, ovata, dentibus utrinque 7–8. Inflorescentiae longiores, basi ramosae; bracteae pedicellis duplo breviores; ovula 5 . 10. *M. annamica.*
Fructus (v. ovaria) tantum stigmatibus sessilibus coronati.
Stamina edentata.
Folia 10–13-juga, foliola breviter petiolulata. Nectaria petalorum 3, confluentia, indistincta . . . . . 11. *M. Bodinieri.*
Folia 4–8-juga.
Folia 4–7-juga, nectaria petalorum 2, distincta, foliola utrinque tantum spinis 2–5 instructis, haud linearia v. lanceolato-linearia.
Pedicelli breves, 2–5 mm. longi, bracteis paullo v. vix longiores.
Foliola utrinque a medio ad apicem spinis 2 late sinuato-dentata, utraque pagina nitidissima, fere concoloria . . . . . 12. *M. nitens.*
Foliola utrinque spinis 3–5 praedita v. subtus distinctius pallidiora.
Bracteae racemosum late-triangulares, vix plus quam 1:0.7 cm. magnae. Foliola fere a basi ad apicem late sinuato-dentata, supra vix nitentia infra distincte pallidiora . . 13. *M. Sheridaniana.*
Bracteae racemosum latissime triangulares, ad 2:1.75 cm. magnae. Foliola margine in parte inferiore integra, a medio ad apicem spinosodenticulata, supra nitida . . . . . 14. *M. eurybracteata.*
Pedicelli elongati, 1.2–1.8 cm. longi, bracteis minimis suffulti; folia ovata, basi cuneata, tantum supra medium ad apicem spinuloso-denticulata. 15. *M. gracilipes.*
Folia 8-juga, foliola linearia v. lanceolato-linearia, dentibus tenuissimis setosis utrinque 15–20, nectaria petalorum indistincta, maculam simulantia . . . . . 16. *M. setosa.*
Stamina infra antheras dentibus 2 satis parvis instructa.
Foliola majora ovato-elliptica. Bracteae racemorum eximiae, triangulares, sed acuminatissimae, ad 3.5 cm. longae . . . . . 17. *M. Leveilleana.*
Foliola anguste lanceolata. Bracteae racemorum satis parvae, triangulares, acutae, 1–2 cm. longae . . . . . 18. *M. Fortunei.*

ENUMERATIO SPECIERUM ASIATICARUM.

Sectio Longibracteatae Fedde, in *Bot. Jahrb.* XXXI. 78 (*Monog. Mahonia*) (1901). To this section belong all species known from Asia and also one from the Pacific North America (*M. nervosa* [Pursh] Nuttall).

1. **Mahonia japonica** De Candolle, *Syst.* II. 22 (1821).

Ilex Japonica Thunberg, *Fl. Jap.* 77 (1784).
Berberis japonica R. Brown in Tuckey, *Congo Exped.* App.. 22 (1816).

Szech'uan: Hants'ao-kan, Nanch'uan, anno 1891, *A. von Rosthorn* (No. 174 ex Fedde); Huang-hua-shan, Nanch'uan, *A. von Rosthorn* (No. 1213 ex Fedde).

I have not seen a specimen of a wild plant of this species, which seems to be very nearly related to *M. nepalensis*, from which it differs in its opaque, not shining leaves rather paler below. Fedde says, that the bracts are acuminate and as long as the pedicels, but in my specimens of var. *Bealei* (Fortune) Fedde the bracts are only half as long as the pedicels and are not acuminate. Koehne (*Deutsche Dendr.* 165) states, that the ovaries of *M. japonica* contain about four ovules, while in *M. nepalensis* there are about seven. I could find only three in var. *Bealei* and also three, or rarely four, in many specimens of wild plants of *M. nepalensis*.

2. **Mahonia flavida** Schneider, n. sp.

Frutex ad 2 m. altus. Folia 7-juga, ad 50 cm. longa, ima basi petioli stipulis 2 filiformibus spinescentibus instructa, jugo infimo multo minore basi petioli valde approximato; foliola circiter 5 cm. inter se distantia, coriacea, utrinque leviter nitentia, subtus paullo pallidiora, nervis primariis elevatis laxe reticulatis, lateralia (terminalia nondum vidi), ovato-lanceolata, obliqua, basi parte exteriore rotunda, apice sensim acuminata, margine fere a basi breviter spinoso-dentata dentibus utrinque 4–8, superiora ad 13.5:3.5–4.2 cm. magna, inferiora breviora, ovata, infima quasi stipulaeformia, ad 3.5 cm. longa. Racemi ad 19 cm. longi, satis densiflori, basi bracteis acuminato-triangularibus ad 2.5 cm. longis instructi; flores flavi, circiter 6–7 mm. diam.; bracteae lanceolatae, acuminatae, pedicellis ad 5 mm. longis fere longiores; sepala 3 externa minima, late ovato-cordata, 3 media late oblonga, 3 interna obovato-oblonga, mediis longiora; petala obovata, sepalis internis paullo v. vix minora basi brevissime contracta, glandulifera; stamina petalis paullo breviora, filamenta antheris paullo longiora, apice apiculata; ovaria distincte stylosa, ovulis 3 sessilibus instructa. Fructus ignoti.

Yunnan: Mengtze, alt. 2000 m., woods, *A. Henry* (No. 10180).

This species seems most nearly related to *M. japonica* De Candolle and *M. nepalensis* De Candolle, but differs from both these species in the shape of the leaflets, which are not as shining as those of *M. nepalensis* and not dull like those of *M. japonica*. Possibly it might be considered a variety of *M. nepalensis*, and there is a specimen from the Khasia Hills collected by Ward (in Herb. Hof-Museum, Vienna), which only differs from this species in its shorter leaflets and in the shorter bracts of the pedicels; the filaments also are not dentate. But I believe that all the Chinese forms, referred to *M. nepalensis* by Hemsley and other authors, represent different species.

3. **Mahonia Zemanii** Schneider. See p. 378.

4. **Mahonia nepalensis** De Candolle, *Syst.* II. 21 (1821).

Berberis nepalensis Sprengel, *Syst.* II. 120 (1825).

Fedde has not seen any Chinese specimen, and only cites specimens from Shensi, Szech'uan and Yunnan according to statements of other authors. I have not seen any of these Chinese specimens, but only those from Nepal, Sikkim and from Assam.

5. **Mahonia Fordii** Schneider, n. sp.

Frutex. Folia 7–8-juga, ad 35 cm. longa, ima basi petioli stipulis 2 filiformibus instructa, jugo infimo multo minore basi petioli valde approximato; foliola inter se 3–3.5 cm. distantia, coriacea, supra nitentia, subtus opaca, discoloria, primo adspectu fere enervia lateralia ovata v. ovato-lanceolata, basi obliqua, rotunda, apice satis subito acuminata utrinque fere a basi spinis brevibus 5–8 dentata, magnitudine foliolorum (jugo infimo excluso) ab inferiore parte rhachidis versus apicem paullo sensim decrescentia, inferiora ad 8:2.5 cm. superiora tantum 6:2 cm. magna, terminalia oblanceolata, basi cuneata, circiter 7:2.5 cm. magna. Racemi satis parvi, 5–8 cm. longi, satis laxiflori, earum bracteae late-triangulares, acutae v. breviter acuminatae, circiter 1–1.5 cm. longae; flores flavi, circiter 6 mm. diam.; pedicelli 3–5 mm. longi bracteis lanceolatis acuminatis subaequilongi v. paullo longiores; sepala tantum 6 (an semper?), 3 externa minima, ovata, 3 interna duplo majora, ovato-oblonga; petala oblonga, sepalis breviora, apice minime emarginata, basi vix unguiculata, glandulifera; stamina normalia, petalis breviora, filamenta antheris paullo longiora; ovaria stylo brevi sed distincto coronata, ovulis 2 sessilibus instructa. Fructus ignoti.

Kwangtung: North River, *C. Ford* (No. 17).

From *M. nepalensis* De Candolle to which it seems most nearly related, *M. Fordii* differs by the much paler and not shining under side of its differently shaped leaflets and by the short racemes. The leaflets somewhat resemble those of *M. Sheridaniana*, but this species belongs to the group with sessile stigmas, their leaflets have a rather different shape, and they are dull on the upper side.

6. **Mahonia polyodonta** Fedde, in *Bot. Jahrb.* XXXI. 126 (*Monog. Mahonia*) (1901).

Szech'uan: without locality, *A. von Rosthorn* (No. 2043, ex Fedde).

Of this species I have not seen a specimen. In the numerous spinose teeth of its leaflets it somewhat resembles the following species, but differs clearly from it in the characters given in the key on p. 381.

7. **Mahonia Veitchiorum** Schneider, n. comb.

Berberis Veitchiorum Hemsley & Wilson in *Kew Bull. Misc. Inform.* 1906, 152.

Frutex ad 1-metralis. Folia 4–5-juga, ad 20 cm. longa, jugo infimo multo minore ima basi petioli sessili; foliola 2–2.5 cm. inter se distantia, valde coriacea, utrinque nitentia, subtus tantum paullo pallidiora, nervis primariis vix elevatis, satis difficile visibilibus, lateralia ovato-lanceolata, paullo obliqua, basi truncato-rotunda, apice satis acuminata, margine spinoso-serrata, spinis utrinque 9–15, inferiora circiter 4.5:1.8 cm., superiora ad 7:2.8 cm. magna, terminalia anguste elliptico-oblonga, ad 9:3.5 magna. Flores ignoti. Racemi fructiferi tantum ad 6 cm. longi, densiflori, earum bracteae late triangulatae, acutae, ad 2 cm. longae; bracteae eximie elongatae, lanceolatae, acuminatae, ad 1 cm. longae, pedicellos duplo superantes; fructus immaturi late-ovati, circiter 6:5 mm. magni, stylo brevissimo, non semper bene distincto coronati; semina 1–2.

Western Szech'uan: alt. 500–2200 m., July 1903, cliffs (Veitch Exped. No. 3142; shrub 0.5–1 m. tall).

This seems to be a good species well distinguished by the very long bracts of the pedicels and also by its leaves. Its nearest relation is *M. polyodotan* Fedde.

8. **Mahonia Duclouxiana** Gagnepain in *Bull. Soc. Bot. France*, LV. 87 (1908).

Yunnan: "près des routes à Lou-kiou-sen, 10 fév. 1905," *Ducloux* (No. 3055); "route de Yunnan-sen à Kiu-tsin-fou, non loin de Ma-long, 20 mars 1904." *Ducloux* (No. 2323); "bois des montagnes à Guon-kay [Ho-kin], 24 mars 1885," *Delavay* (No. 2353, "fruits mûrs bleus, arbuste peu rameux de 2 m.").

I have not seen a specimen of this species, but according to the description I think it may be different from all the species known to me.

9. **Mahonia decipiens** Schneider. See p. 379.

10. **Mahonia annamica** Gagnepain in Lecomte, *Fl. Gén. Indo-Chine*, I. 157, fig. 16 (7–17) (1907).

Annam: "Haut-Donnai, plateau de Lang-bian," *Jacquet* (ex Gagnepain).

I know this species only from the description of the author. It may be most nearly related to *M. nepalensis* De Candolle and *M. japonica* De Candolle, from which it differs by the characters given in the key on p. 381. The stamens are apiculate and the filaments twice longer than the anthers.

11. **Mahonia Bodinieri** Gagnepain in *Bull. Soc. Bot. France*, LV. 85 (1908).

Kwei-chou: "environs de Gan-pin, dans les bois et rocailles, et mont du Collège à Kouy-yang, 19 juillet 1898," *E. Bodinier* (No. 2465).

This seems to be a distinct species, but the fruits are not known and I am not quite sure whether the style is entirely wanting.

12. **Mahonia nitens** Schneider. See p. 379.

13. **Mahonia Sheridaniana** Schneider, n. sp.

Frutex. Folia 4–5-juga, ad 26 cm. longa, jugo infimo multo minore basi petioli magnopere approximato, ima basi petioli stipulis 2 filiformibus minimis instructa; foliola valde coriacea, supra ut videtur satis claro-viridia, vix nitentia, subtus distincte bicoloria, in sicco fere albescentia, nervis primariis paullo visibilibus, lateralia a basi petioli versus apicem ejus accrescentia, inferiora late ovata, circiter 3:2.3 cm. magna, superiora ad 8.5:2.7 cm. magna, ovato-lanceolata, satis obliqua, basi externa rotunda, apice breviter acuminata, margine late sinuato-spinoso-dentata, spinis utrinque 2–5; terminalia elliptico-lanceolata, ad 11:3.5 cm. magna, inferiore parte plerumque integra. Racemi (an satis evoluti?) ad 7 cm. longi, densiflori, earum bracteae late-triangulares, breviter acutae, vix 1 cm. longae; flores lutei (?), initio extus rubescentes (?), circiter 5(–6) mm. diam.; pedicelli 2–4 cm. longi, bracteis ovato-lanceolatis, subacutis, aequilongis v. paullo brevioribus suffulti; sepala 3 externa minima, ovata, 3 media majora late ovata, 3 interna maxima, late ovata; petala obovata, sepalis internis paullo breviora, apice incisa, basi breviter unguiculata, glandulifera; stamina quam petala breviora, normalia, filamentis antheris subaequilongis; ovaria ut videtur estylosa, ovulis 2 instructa. Fructus ignoti.

Western Hupeh: April 1900, *E. H. Wilson* (Veitch Exped. No. 426).

It is impossible for me to refer Wilson's specimen to any described species. *M. Sheridaniana* differs from all the species with sessile stigmas in the form and color of its leaflets. And even if the fruits did bear a very short style it would not prove identical with any of the species described. At the request of Mr. Wilson I have named this species for Dr. W. R. Sheridan, formerly in charge of the American Methodist Mission Hospital, Chengtu, in recognition of great service rendered to him during the autumn of 1910.

14. **Mahonia eurybracteata** Fedde in *Bot. Jahrb.* XXXI. 127, fig. 4 c (*Monog. Mahonia*) (1901).

Szech'uan: woods near Chia-chu-pa, Nanch'uan, *A. von Rosthorn*, 1891 (No. 1251, ex Fedde).

I have not been able to see any specimen of this plant, but from the description it appears to be a well-marked species. The leaves resemble those of the following species, which however differs from it in the characters indicated beneath.

15. **Mahonia gracilipes** Fedde in *Bot. Jahrb.* XXXI. 128, fig. 5 (*Monog. Mahonia*) (1901).

Berberis gracilipes Oliver in *Hooker's Icon.* XVIII. t. 1754 (1887).
Berberis subtriplinervis Franchet in *Bull. Mus. Hist. Nat. Paris*, I. 63 (1895).
Mahonia subtriplinervis Fedde in *Bot. Jahrb.* XXXI. 129 (*Monog. Mahonia*) (1901).

Szech'uan: Mount Omei, alt. 1600 m., *E. Faber.* Northern Yunnan: in woods near Tschen-fouchan, *Delavay* (No. 5024).

This species is well distinguished by its loose racemes and very long pedicels.

16. **Mahonia setosa** Gagnepain in *Bull. Soc. Bot. France*, LV. 86 (1908).

Yunnan: "près Tien-pa-téou, Oct. 1894, parmi les pierres, au bord de la rivière," *Delavay* (No. 6830, "fleurs jaunes, petit arbuste").

This species seems to be well distinguished by its narrow leaflets with numerous slender teeth.

17. **Mahonia Leveilleana** Schneider n. sp.

Frutex (v. arbuscula?). Folia 8–9-juga, ad 45 cm. longa, jugo infimo minimo basi petioli magnopere approximato, ima basi petioli stipulis 2 filiformibus instructa; foliola coriacea, supra atro-viridia, vix v. non nitentia, subtus claro-viridia, nitentia, nervis lateralibus bene evolutis, laxe reticulatis, lateralia jugorum 2 inferiorum quam cetera satis minora, late rhomboidea, 3.5–5.5 cm. longa et 2.5–3 cm. lata, jugorum mediorum oblique ovato-elliptica, basi rotunda v. truncata, apice breviter acuminata, ad 10:3.2 magna, jugorum superiorum paullo minora, ovato-lanceolata, interdum tantum 7:2.5 cm. magna, omnia a basi ad apicem sinuato-dentata spinis utrinque 4–8, terminalia ovato-oblonga, ad 11:4.3 cm. magna. Racemi ad 18 cm. longi densiflori, floribus plerumque verticillatis; bracteae inflorescentiarum valde triangulari-acuminatae, ad 3.5 cm. longae; flores flavi (?), 5–6 mm. diam.; pedicelli 2–3 mm. longi, bracteis ovatis satis obtusis fere duplo brevioribus suffulti; sepala 3 externa late-ovata minima, 3 interna late-ovata multo majora; petala obovata sepalis paullo breviora, apice brevissime incisa, basi vix unguiculata, glandulifera; stamina quam petala breviora, infra antheras dentibus 2 parvis praedita; ovaria estylosa, ovulis 2 sessilibus instructa. Fructus ignoti.

Kwei-chou: "environs de Kouy-yang, mont du Collége," July 7, 1898, *Émile Bodinier* (No. 2469).

This seems to be a very well-marked species in its leaves and in its denticulate filaments. The specimen from the Herbarium of the Acad. Intern. Geog. Bot. was named *Mahonia elegans* Léveillé, but this is apparently an unpublished name, and as there is already a *Berberis elegans* Schneider it seems advisable not to use the same specific name in Mahonia.

18. **Mahonia Fortunei** Fedde. See p. 380.

NANDINA Thunb.

Nandina domestica Thunberg, *Fl. Jap.* 9 (1784). — Sims in *Bot. Mag.* XXVIII. t. 1109 (1808). — Debeaux, *Fl. Shangh.* 14 (1879). — Ito, *Fig. Descr. Pl. Koishikawa Bot. Gard.* II. t. 8ª, 8ᵇ (1883). — Hemsley in *Jour. Linn. Soc.* XXIII. 7 (1886). — Diels in *Bot. Jahrb.* XXIX. 337 (1900). — Pampanini in *Nuov. Giorn. Bot. Ital.* n. ser. XVIII. 168 (1911).

Western Hupeh: Ichang and neighborhood, ravines and rocky places generally, alt. 30–600 m., June and November 1907 (No. 2379; bush 1–2 m. tall, flowers white, fruit scarlet); without locality, *A. Henry* (No. 2705). Chekiang: vicinity of Ningpo, 1908, *D. Macgregor*. Fokien: Dunn's Exped. 1905 (ex Herb. Bot. Gard. Hongkong, No. 2344).

Abundant in glens and ravines all over western Hupeh and Szech'uan up to altitudes of 600 m. A picture of this shrub will be found under No. 0186 of the collection of Wilson's photographs.

MENISPERMACEAE.

Determined by Alfred Rehder and E. H. Wilson.

SINOMENIUM Diels.

Sinomenium acutum Rehder & Wilson, n. comb.

Menispermum acutum Thunberg, *Fl. Jap.* 193 (1784). — Lamarck, *Encycl. Méth. Bot.* IV. 96 (1797).
Menispermum? acutum De Candolle, *Syst.* I. 541 (1818); *Prodr.* I. 103 (1824).
Cocculus? diversifolius Miquel in *Ann. Mus. Lugd.-Bat.* III. 10 (*Prol. Fl. Jap.* 198) (non De Candolle) (1867).
Cocculus diversifolius Franchet & Savatier, *Enum. Fl. Jap.* I. 20 (non De Candolle) (1875). — Maximowicz in *Bull. Acad. Sci. St. Pétersbourg*, sér. 3, XXIX. 71, t. 2, fig. 21–35 (1883); in *Mél. Biol.* XI. 652 (1883).
Cebatha Miqueliana O. Kuntze, *Rev. Gen.* I. 9 (1891).
Cocculus heterophyllus Hemsley & Wilson in *Kew Bull. Misc. Inform.* 1906, 150.
Menispermum diversifolium Gagnepain in *Bull. Soc. Bot. France*, LV. 38 (non Prantl) (1908).
Cocculus? acutus Makino in *Tokyo Bot. Mag.* XXII. 172 (1908).
Sinomenium diversifolium Diels in Engler, *Pflanzenr.* IV.-94, 254 (1910). — Hemsley in *Gard. Chron.* ser. 3, LII. 402, fig. 178 (1912).

Western Hupeh: Fang Hsien, thickets, alt. 1300 m., June 1907 (No. 617[a]; climber 3–6 m., flowers greenish). Western Szech'uan: Mt. Omei, July 1904 (Veitch Exped. No. 4718). Korea: Quelpaert, September 1909, *Taquet* (No. 2599).

The typical Japanese form is very rare in western China and it is possible that the Chinese specimens enumerated above should be referred to the following as a glabrescent form.

Diels in his monograph (l. c.) apparently overlooked Thunberg's *Menispermum acutum* and Makino's identification (l. c.) of it with Miquel's *Cocculus? diversifolius*.

Sinomenium acutum, var. cinereum Rehder & Wilson, n. comb.

Cocculus diversifolius, var. *cinereus* Diels in *Bot. Jahrb.* XXXVI. *Beibl.* LXXXII. 45 (1905).
Menispermum diversifolium, var. *molle* Gagnepain in *Bull. Soc. Bot. France*, LV. 39 (1908).
Sinomenium diversifolium, var. *cinereum* Diels in Engler, *Pflanzenr.* IV.-94, 255 (1910).

Western Hupeh: Fang Hsien, thickets, alt. 1600 m., June and September 1907 (No. 336; climber 3–6 m., leaves very variable, fruit blue-black); north and south of Ichang, thickets, alt. 1000–1300 m., June and October 1907 (No. 617, in part; climber 6 m., fruit blue-black); Hsing-shan Hsien, thickets, alt. 1300 m., June 1907 (No. 617, in part); Nanto, June 1900 (Veitch Exped. No. 1203); without locality, July 1900 and 1901 (Veitch Exped. Nos. 1483, 2267).

A very common plant in western Hupeh up to an altitude of 1500 m., and less common in western Szech'uan. The leaves are extraordinarily variable and in warm localities persist well into the late winter. The bark is smooth and pale green even on quite old shoots. A colloquial name for this climber is "Ching-teng."

COCCULUS DC.

Cocculus trilobus De Candolle, *Syst.* I. 522 (1818); *Prodr.* I. 98 (1824). — Diels in Engler, *Pflanzenr.* IV.-94, 232, fig. 78 a–l (1910).

Menispermum orbiculatum Thunberg, *Fl. Jap.* 194 (non Linnaeus) (1784).
Menispermum trilobum Thunberg, *Fl. Jap.* 194 (1784).
Cocculus Thunbergii De Candolle, *Syst.* I. 524 (1818); *Prodr.* I. 98 (1824). — Miquel in *Ann. Mus. Lugd.-Bat.* III. 10; *Prol. Fl. Jap.* 198 (1867). — Hance in *Jour. Linn. Soc.* XIII. 99 (1873). — Franchet in *Nouv. Arch. Mus. Paris*, sér. 2, V. 176 (*Pl. David.* I. 21) (1882). — Maximowicz in *Bull. Acad. Sci. St. Pétersbourg*, sér. 3, XXIX. 70 (1883); in *Mél. Biol.* XI. 651 (1883). — Hemsley in *Jour. Linn. Soc.* XXIII. 28 (1886). — Diels in *Bot. Jahrb.* XXIX. 345 (1900). — Pampanini in *Nuov. Giorn. Bot. Ital.* n. ser. XVII. 274 (1910). — Dunn & Tutcher in *Kew Bull. Misc. Inform.* add. ser. X. 31 (*Fl. Kwangtung & Hongkong*) (1912).
Cocculus cynanchoides Presl, *Reliq. Haenk.* II. 79 (1830).
Nephroica caudata Miers in *Ann. Mag. Nat. Hist.* sér. 3, XIX. 26 (nomen nudum) (1867); *Contrib. Bot.* III. 263 (1871).
Nephroica Thunbergii Miers in *Ann. Mag. Nat. Hist.* ser. 3, XIX. 26 (1867); *Contrib. Bot.* III. 263 (1871).
Nephroica dilatata Miers in *Ann. Mag. Nat. Hist.* ser. 3, XIX. 26 (1867); *Contrib. Bot.* III. 264 (1871).
Nephroica triloba Miers in *Ann. Mag. Nat. Hist.* ser. 3, XIX. 26 (1867); *Contrib. Bot.* III. 266 (1871).
Nephroica cynanchoides Miers in *Ann. Mag. Nat. Hist.* ser. 3, XIX. 26 (1867); *Contrib. Bot.* III. 267 (1871).
Nephroica pycnantha Miers in *Ann. Mag. Nat. Hist.* ser. 3, XIX. 26 (nomen nudum) (1867); *Contrib. Bot.* III. 268 (1871).
Holopeira fecunda Miers in *Ann. Mag. Nat. Hist.* ser. 3, XIX. 29 (1867); *Contrib. Bot.* III. 275 (1871).
Cebatha orbiculata O. Kuntze, *Rev. Gen.* I. 9 (1891). — Schneider *Ill. Handb. Laubholzk.* I. 327, fig. 205 k–n (1905).
Cocculus orbiculatus Schneider, *Ill. Handb. Laubholzk.* I. 806 (1906).
Dioscorea japonica Pavolini in *Nuov. Giorn. Bot. Ital.* n. ser. XV. 441 (non Thunberg) (1908).

Kiangsi: Kuling, alt. 1300 m., abundant, July 28, 1907 (No. 1539; climber 3 m., flowers white). Western Hupeh: north and south of Ichang, side of streams, alt. 300–1000 m., abundant, June 1907 (No. 2284; climber 2–3 m.); without locality, June and July 1900 and August 1901 (Veitch Exped. Nos. 1201, 1429, 2561); without locality, *A. Henry* (No. 3640). Chekiang: vicinity of Ningpo, 1908, *D. Macgregor*. Shantung: Tsingtau, 1901, *Zimmerman* (No. 216). Korea: Seoul, September 1905, *J. G. Jack;* Quelpaert, July 1908 and August and September 1909, *Taquet* (Nos. 542, 543, 2600, 2597, 2598).

This very variable plant is abundant in western Hupeh and in Szech'uan up to 1000 m. altitude, where it is colloquially known as the "Hsiao Ching-teng." Many of the forms look very distinct in foliage but the leaves are so inconstant in shape, size and degree of pubescence that it is useless to attempt to distinguish between them.

DIPLOCLISIA Miers.

Diploclisia affinis Diels in Engler, *Pflanzenr.* IV.-94, 227 (1910).

Cocculus affinis Oliver in *Hooker's Icon.* XVIII. t. 1760 (1888). — Diels in *Bot. Jahrb.* XXIX. 345 (1900).

Western Hupeh: Fang Hsien, rocky places, not common, alt. 1000 m., May 8, 1907 (No. 2286, in part; climber 3 m., flowers yellow); Hsing-shan Hsien, alt. 600–1000 m., June 6, 1907 (No. 2286, in part; climber 3 m., fruit blue-black); without locality, May 1900 (Veitch Exped. No. 822). Fokien: without locality, Dunn's Exped., 1905 (Herb. Bot. Gard. Hongkong, No. 2336).

STEPHANIA Lour.

Stephania Delavayi Diels in Engler, *Pflanzenr.* IV.-94, 275 (1910).

Kiangsi: plain around Kiukiang, alt. 100 m., July 27, 1907 (No. 1541; climber 3 m., flowers greenish). Western Hupeh: without locality, *A. Henry* (No. 1664).

Common by the roadsides in the vicinity of the lower Yangtsze river.

Stephania japonica Miers in *Ann. Mag. Nat. Hist.* ser. 3, XVIII. 14 (1866); *Contrib. Bot.* III. 213 (1871). — O. Kuntze, *Rev. Gen.* I. 9 (pro parte) (1891). — Diels in Engler, *Pflanzenr.* IV.-94, 277 (1910).

Menispermum japonicum Thunberg, *Fl. Jap.* 193 (1784). — Lamarck, *Encycl. Méth. Bot.* IV. 96 (1797).

Cocculus japonicus De Candolle, *Syst.* I. 516 (1818); *Prodr.* I. 96 (1824).
Cissampelos psilophylla Presl, *Reliq. Haenk.* II. 80 (1835).
Stephania appendiculata Miers in *Ann. Mag. Nat. Hist.* ser. 3, XVIII. 15 (nomen seminudum) (1866); *Contrib. Bot.* III. 221 (1871).
Stephania intertexta Miers in *Ann. Mag. Nat. Hist.* ser. 3, XVIII. 15 (nomen seminudum) (1866); *Contrib. Bot.* III. 222 (1871).
Stephania hypoglauca Miers in *Ann. Mag. Nat. Hist.* ser. 3, XVIII. 15 (nomen seminudum) (1866); *Contrib. Bot.* III. 227 (1871).
Clypea effusa Miers in *Ann. Mag. Nat. Hist.* ser. 3, XVII. 270 (nomen seminudum) (1866); *Contrib. Bot.* III. 207 (1871).
Clypea consummata Miers in *Ann. Mag. Nat. Hist.* ser. 3, XVII. 270 (nomen seminudum) (1866); *Contrib. Bot.* III. 209 (1871).
Clypea subovata Miers in *Ann. Mag. Nat. Hist.* ser. 3, XVII. 270 (nomen seminudum) (1866); *Contrib. Bot.* III. 209 (1871).
Stephania hernandifolia Miquel in *Ann. Mus. Lugd.-Bat.* III. 10 (*Prol. Fl. Jap.* 198) (non Walpers) (1867). — Maximowicz in *Bull. Acad. Sci. St. Pétersbourg*, sér. 3, XXIX. 64, t. 2, fig. 1–9 (1883); in *Mél. Biol.* XI. 643.

Western Hupeh: Ichang, side of rice fields, alt. 30–300 m., July 1907 (No. **2287**; slender climber 1–2 m., flowers green). Chekiang: vicinity of Ningpo, 1908, *D. Macgregor*.

A common wayside weed near Ichang.

CYCLEA Arnott.

Cyclea racemosa Oliver in *Hooker's Icon.* XX. t. 1938 (1890). — Diels in *Bot. Jahrb.* XXIX. 345 (1900); in Engler, *Pflanzenr.* IV.-94, 318 (1910).

Western Hupeh: Hsing-shan Hsien, ravines, alt. 1000 m., May 7, 1907 (No. **2285**; climber 2–3 m., flowers greenish).

TINOSPORA Miers.

Tinospora sagittata Gagnepain in *Bull. Soc. Bot. France*, sér. 4, VIII. 45 (1908). — Diels in Engler, *Pflanzenr.* IV.-94, 138 (1910).

Limacia sagittata Oliver in *Hooker's Icon.* XVIII. t. 1749 (1888). — Diels in *Bot. Jahrb.* XXIX. 345 (1900). — Dunn & Tutcher in *Kew Bull. Misc. Inform.* add. ser. X. 31 (*Fl. Kwangtung & Hongkong*) (1912).

Western Szech'uan: Hung-ya Hsien, foot of Wa-wu-shan, thickets, alt. 1100 m., September 10, 1908 (No. **3528**; climber, 3–4 m.). Western Hupeh: without locality, April 1900 (Veitch Exped. No. 141); without locality, *A. Henry* (No. 3431).

MAGNOLIACEAE.

Determined by Alfred Rehder and E. A. Wilson.

MAGNOLIA L.

Magnolia officinalis Rehder & Wilson, n. sp.

Magnolia hypoleuca Diels in *Bot. Jahrb.* XXIX. 311 (non Siebold & Zuccarini) (1900). — Finet & Gagnepain in *Bull. Soc. Bot. France,* LII. Mém. IV. 37 (pro parte, non Siebold & Zuccarini) (1905); *Contrib. Fl. As. Or.* II. 37 (1907). — Wilson in *Gard. Chron.* ser. 3, XXXIX. 234 (1906), excludenda descriptione fructus.

Arbor 6–15-metralis, ramis ascendentibus, coma satis densa, trunco 0.3–1 m. circuitu; ramuli hornotini initio sericeo-tomentosi, annotini glabri, laeves, flavidi v. pallide flavo-cinerei, vetustiores cinerascentes, lenticellis paucis et circatricibus foliorum magnis notati; gemmae cylindrico-ovoideae, acutiusculae, circiter 3.5 cm. longae, verruculosae, fulvo-villosulae. Folia decidua, in apice ramulorum congesta, elliptico-obovata v. oblongo-obovata, apice plerumque rotundata, breviter acuminulata, rarius obtusa, basim versus angustata, cuneata v. interdum subito contracta et fere rotundata, 35–45 cm. longa et 12–20 cm. lata, supra glabra, laete luteo-viridia, in sicco reticulata, subtus initio dense cinereo-tomentosa, densum glauca v. glaucescentia, satis dense villosa praecipue ad nervos, reticulata, nervis utrinsecus 20–30 subtus ut costa elevatis; petioli subteretes, 3–4 cm. longi. Flores simul cum foliis, fragrantes, albi, cupuliformes 15–20 cm. diam.; pedunculi crassi, 2–3.5 cm. longi, dense sericeo-villosi; sepala petalaque 9–12 v. plura, subaequalia, carnosa, tria exteriore demum reflexa, spatulato-obovata, 8–10 cm. longa et 3–4 cm. lata, apice rotundata, interiora patenti-erecta, oblongo-spatulata v. oblonga, apice rotundata, infra trientem inferiorem angustata, prius decidua quam exteriora; stamina numerosa, filamentis dilatatis, scarlatinis, 3–5 mm. longis, antheris 10–12 mm. longis introrsis, connectivo mucronato; gynaeceum cum parte staminifera 3.5 cm. longum, rubrum; carpella numerosa, stigmatibus 5–6 mm. longis acutis leviter recurvis intus papillosis. Fructus oblongo-ovoideus, apice truncatus, basi rotundatus carpellis infimis basi subito contractis, 10–12 cm. longus

et 5.5–6 cm. diam.; carpella matura lignea, monosperma, valvis rectangulari-rhombicis 2–2.5 cm. altis et 1.2–1.5 cm. longis margine exteriore truncatis supra breviter rostratis rostro 2–3 mm. longo, infra vix v. non rostratis; semina obovoidea, apice rotundata, circiter 12 mm. longa et 10 mm. lata, compressa, testa interiore nigrescente, ventre leviter sulcata.

Western Hupeh: north and south of Ichang, cultivated, alt. 300–1300 m., May 11 and October 1907 (No. **652**, type); without locality, May 1900 (Veitch Exped. No. 371); without locality, *A. Henry* (No. 5389). Szech'uan: without locality, *A. Henry* (No. 5389[a]).

This species has been confused with *M. obovata* Thunberg (*M. hypoleuca* Siebold & Zuccarini) and naturally enough, as the foliage of the two species is identical. But with the complete material before us it becomes obvious that they are distinct, if closely related, species. The Japanese species has purplish bark; staminal and carpellary column 4 cm. or more long, acutish at the summit; the filaments 9–15 mm. long, anthers 16–18 mm. long; fruit cylindrical, 13–20 cm. long, 4.5–5.5 cm. wide, somewhat pointed at the apex and attenuate at the base; ripe carpels with long, usually slightly recurved beaks and rather thin walls. If these characters are compared with those of the Chinese species it will be seen that the differences, if few, are of relatively great importance, particularly those of the fruit which is ovoid-oblong in the new species, truncate at the apex and rounded at the base, the lowest carpels being rounded at the base, not decurrent as in *M. obovata*. The different color of the bark enables the trees to be distinguished at any season of the year. The Chinese species is in cultivation at Kew and elsewhere and comparisons between specimens of the Japanese and Chinese trees will probably result in the discovery of other differences.

Magnolia officinalis is very commonly cultivated on the mountains of western Hupeh and Szech'uan, but we have not met with a spontaneous tree in the forests. This same remark would apply to many other trees of economic value (*Gleditsia* and *Eucommia*, for example) and we do not doubt that these and the Magnolia are truly natives of this region. This new Magnolia does not grow to as large a size as its Japanese relative, though the flowers and foliage are equally handsome. The Chinese designate this species the "Hou-p'o" tree, and its bark and flower-buds constitute a valued drug which is exported in quantity from central and western China to all parts of the Empire. It is for its bark and flower-buds that the tree is cultivated. The removal of the bark causes the death of the tree and this would account for its disappearance from the forests. The bark when boiled yields an extract which is taken internally as a cure for coughs, colds, and as a tonic and stimulant during convalescence. A similar extract obtained from the flower-buds, which are called "Yu-p'o," is esteemed as a medicine for women. A picture of this tree will be found under No. 582 of the collection of Wilson's photographs and also in his *Vegetation of Western China*, No. 308.

This is in all probability the plant referred to as *Talauma sp.?* by Franchet in *Nouv. Arch. Mus. Paris*, sér. 2, VIII. 193 (*Pl. David.* II. 11) (1886).

Magnolia officinalis, var. **biloba** Rehder & Wilson, n. var.

A typo recedit foliis apice profunde emarginatis v. bilobis sinu 2–3 cm. alto.

Kiangsi: Kiukiang, foot of ascent to Kuling, cultivated, alt. 300 m., August 2, 1907 (No. **1649**; tree 10–12 m. tall).

Except in its bilobed leaves this variety differs in no particular from the type. It is also cultivated for the medicinal value of its bark and leaves. The peculiarity in the foliage is constant in all the trees we saw. This variety is also cultivated in the vicinity of Ningpo where it was collected a few years ago by the late Bishop Moule.

Magnolia globosa Hooker f. & Thomson, *Fl. Ind.* I. 77 (1885); in Hooker f., *Fl. Brit. Ind.* I. 41 (1872). — Gamble, *Trees & Shrubs Darjeeling* 2 (1877); *Manual Ind. Timbers*, 9 (1902). — King in *Ann. Bot. Gard. Calcutta*, III. 208, fig. 50 (1891). — Finet & Gagnepain in *Bull. Soc. Bot. France*, LII. Mém. IV. 39 (1905); *Contrib. Fl. As. Or.* II. 39 (1907). — Brandis, *Ind. Trees*, 6 (1906).

Sikhim Himalaya: alt. 3000–3300 m.

Magnolia globosa, var. **sinensis** Rehder & Wilson, n. var.

Frutex 2.5–5 m. altus, ramis gracilibus; ramuli hornotini initio sericeo-pilosi, glabrescentes, annotini, glabri, laeves, pallide cinerei v. flavido-cinerei, rarius fuscescentes. Folia decidua, membranacea, maturitate subchartacea, late-obovata v. elliptico-obovata, rarius elliptico-ovata, apice rotundata et breviter acuminulata, rarius subacuta, basi rotundata, interdum truncata, rarissime late cuneata, 10–20 cm. longa et 6–16 cm. lata, supra glabra, obscure luteo-viridia, in sicco reticulata, subtus laxe villosa, ad nervos densius sericeo-villosa, glaucescentia, maturitate saepe glabrescentia, nervis utrinsecus 10–15 in triente superiori plerumque manifeste furcatis supra ut costa colore flavido conspicuis subtus elevatis reticuloque venularum leviter elevato; petioli sericeo-villosi, 2.5–4 cm. longi. Flores ut in typo, simul cum foliis bene evolutis, fragrantes, albi, cupulares, 12–15 cm. diam., gynaeceo scarlatino; alabastra ovoidea. Fructus oblongo-cylindricus, 4.5–5 cm. longus, 1.5 cm. diam.; pedicellus satis gracilis, 5–6.5 cm. longus, glabrescens; carpella rostrata.

Western Szech'uan: west and near Wên-ch'uan Hsien, woodlands and thickets, alt. 2000–2600 m., June and September 1908 (No. **1422**).

This Chinese variety is always a shrub of straggling habit, and thus differs from the Indian species which is described as a tree, 40 ft. tall. The Indian plant also differs in its ovate acute or obtuse leaves and in its rufous pubescence.

This variety is a handsome flowering shrub and is not uncommon in the moist woods and thickets of north-western Szech'uan.

Magnolia Nicholsoniana Rehder & Wilson, n. sp.

Frutex v. arbor tenuis, 4–6-metralis, ramis gracilibus; ramuli hornotini sparse sericeo-pilosi, mox glabrescentes, annotini glabri, cinereo-flavidi, laeves, vetustiores cinereo-purpurei; gemmae terminales cylindrico-oblongae, acutae, rufo-pilosae. Folia decidua, sparsa, elliptico-oblonga v. obovato-oblonga, acuta v. breviter acuminata, basi late cuneata v. rarius rotundata, 8–12 cm. longa et 3–5 cm. lata, supra glabra, obscure viridia, subtus glaucescentia, glabra costa media dense accumbenti-rufo-pilosa excepta, nervis utrinsecus 10–14 subtus elevatis venulisque leviter elevatis; petioli graciles, 1.5–4.5 cm. longi, initio rufo-pilosi, demum glabrescentes. Flores simul cum foliis, cupulares, 9–10 cm. diam., albi, gynaeceo rubro, fragrantes; pedicellus 3–3.5 cm. longus, cicatricem bracteae spathoideae 6–8 mm. infra sepala gerens, laxe subaccumbenti-rufo-pilosus, sed supra cicatricem glaber; sepala petalaque plerumque 12, exteriora obovato-oblonga, 3.5–5 cm. longa et 2.2–2.5 cm. lata, acutiuscula, ea seriei mediae obovata, 4–5 cm. longa, et 2.4–3 cm. lata, apice rotundata, interiora elliptico-oblonga, obtusa v. acutiuscula, basim versus angustata, 2.5–3.5 cm. longa et 1–1.8 cm. lata; stamina numerosa, erecto-patentia, 9–10 mm. longa, filamentis rubris 1.5–2 mm. longis anthera angustioribus, connectivo apice truncato v. obtuso; gynaeceum cum parte staminifera 2.5 cm. longum, rubrum; carpella pauca, stigmate apice leviter recurvo 3–4 mm. longo acuto. Fructus nutans, cylindrico-oblongus, 4–5 cm. longus; carpella matura congesta, aperta naviculiformia, valvis plerumque apice et basi cohaerentibus 1–1.5 longis et 6–8 mm. altis, supra manifeste rostrata rostro patenti v. recurvo; semina 1–2 in quoque carpello, late triangulari-obovoidea, apice truncata, interdum latiora quam longa, compressa, 8–9 mm. longa v. lata scarlatina, testa interiore brunnea, non sulcata.

Western Szech'uan: Wa-shan, thickets, alt. 2300–2800 m., June and September 1908 (No. 838).

This species is closely allied to *M. Wilsonii* Rehder which is distinguished by its vinous-red colored bark, shorter petioles, somewhat differently shaped leaves densely covered with gray, velvety pubescence on the under surface, fewer sepals and petals (the inner and secondary series uniform in size and shape), and in the stout peduncle villose along its entire length with bract-scars situated near the middle. The fruit is also generally larger and the seeds a little different in shape. *Magnolia Nicholsoniana* is very rare and is only known to occur in the moist thickets and woodlands on and around Wa-shan. It is in cultivation in the Arnold Arboretum.

As a tribute of respect to the memory of a man of exceptional merit this species is named for the late George Nicholson, for fifteen years Curator of the Royal Gardens, Kew, and a great authority on hardy ligneous plants.

Magnolia Wilsonii Rehder, n. sp.

Magnolia parviflora, var. *Wilsoni* Finet & Gagnepain in *Bull. Soc. Bot. France*, LII. Mém. IV. 39 (1905); *Contrib. Fl. As. Or.* II. 39 (1907).
Magnolia globosa Wilson in *Gard. Chron.* ser. 3, XXXIX. 234 (pro parte, non Hooker & Thomson) (1906).

Frutex divaricatus, circiter 3-metralis v. rarius arbor tenuis ad 8-metralis, ramis gracilibus; ramuli tenues, hornotini rufo- v. cinereo-villosi; annotini glabri, lenticellis sparsis notati, purpureo-brunnei; gemmae terminales, anguste oblongae, 1.5–2 cm. longae, dense rufo-pilosae. Folio decidua, sparsa, elliptico-lanceolata, rarius elliptico-ovata v. elliptico-oblonga, acuta v. breviter acuminata, basi rotundata v. leviter subcordata, rarius late cuneata, 7–15 cm., plerumque 9–12 cm. longa et 2.5–6 cm., plerumque 3.5–5 cm. lata, supra glabra, obscure viridia, in sicco leviter reticulata, subtus dense villoso-tomentosa pilis longis sericeis subaccumbentibus cinereo-flavidis ad costam rufis, nervis utrinsecus 10–12 ut costa subtus elevatis; petioli dense rufo-pilosi, 1–4 cm. longi. Flores simul cum foliis, albi, gynaeceo staminibusque rubris, fragrantes, cupulares, 10–12 cm. diam.; alabastra ovoidea, acuta, sparse fulvo-villosa, glabrescentia; pedicellus 2–2.5 cm. longus, cicatricem bracteae spathoideae circa medium gerens, fulvo-villosus; sepala petalaque plerumque 9, erecto-patentia, 5–6 cm. longa et 2–4.5 cm. lata, exteriora elliptica, acuta v. obtusa, interiora obovata apice rotundata; stamina numerosa, 10–12 mm. longa, erecto-patentia, filamentis brevissimis, 1.5–2 mm. longis rubris, connectivo apice rotundato plerumque mucronulato; gynaeceum cum parte stammifera circiter 2.5 cm. longum, rubrum; carpella vix numerosa, stigmatibus erecto-patentibus 3–4 mm. longis. Fructus nutans, oblongo-cylindricus, obtusus, 6–7 cm. longus et 2–2.4 cm. diam., purpureus; carpella matura congesta, aperta naviculiformia, valvis plerumque apice et basi cohaerentibus 1–1.5 cm. longis circiter 8 mm. altis supra manifeste rostratis; semina 1–2, irregulariter latissime obovoidea, interdum latiora quam longa, 7–8 mm. longa v. lata, compressa, scarlatina, testa interiore griseo-brunnea non sulcata basi acuminulata.

Western Szech'uan: south-east of Tachien-lu, woods and thickets, alt. 2300–2600 m., May 24 and October 1904 (Veitch Exped. No. 3137, type); same locality, alt. 2000–2800 m., June and October 1908 (**No. 1374**).

This is a remarkably distinct species, readily distinguished by the dense pubescence of the under side of the leaves, their shape and by the prominent scar on the

peduncle left behind by the spathoid bract. The flowers in shape and size resemble those of *M. parviflora* Siebold & Zuccarini, to which species Finet & Gagnepain referred it as a variety. The Japanese plant, however, has yellow-gray bark, broadly ovate to obovate glabrescent leaves, which are scarcely ever hairy except on the veins, and a long peduncle with no signs of a scar. *Magnolia Wilsonii* has close affinity with *M. globosa* Hooker & Thomson which has straw-colored bark, broadly ovate, much larger leaves, different pubescence and obovate sepals. The closest relative of this new species is *M. Nicholsoniana* Rehder & Wilson, which is distinguished by its yellow-gray bark passing to dull purple the second year, by the generally elliptic-oblong, sometimes obovate-oblong leaves, commonly cuneate at the base, glabrous except on the pubescent midrib and glaucescent below, and by the rather smaller fruit with few carpels. *Magnolia Wilsonii* is quite common in the moist woods and thickets to the south-east of Tachien-lu, usually in the form of a straggling bush. In late May and early June it is very conspicuous with its pure white petals and sepals and bright red stamens and carpels. It is very floriferous and fragrant and promises to be a welcome addition to the list of cultivated species.

Magnolia aulacosperma Rehder & Wilson, n. sp.

Arbor 6–12-metralis, trunco 0.5–1 m. circuitu, ramis brevibus divaricatis; ramuli satis graciles, hornotini glabri, annotini sparse lenticellati, purpureo-fusci; cortex trunci pallide cinereus, fere laevis; gemmae ovoideae, flavescenti-sericeae, nitidae, gemmae florales ovoideae, circiter 2 cm. longae, dense pilis longis villosis albidis vestitae. Folia decidua, membranacea, oblongo-lanceolata v. ovato-lanceolata, rarius oblanceolata-oblonga, acuminata, basi rotundata v. rarius cuneata, 10–18 cm., plerumque 12–15 cm. longa et 3.5–6.5 cm. lata, supra glabra, obscure viridia, in sicco leviter reticulata, subtus pallide viridia, secus costam et ad basim nervorum lateralium pilosa ceterum glabra, reticulata, nervis utrinsecus 10–15 fere rectis supra leviter subtus manifeste elevatis, costa media supra leviter impressa subtus manifeste elevata; petioli 6–10 mm. longi, glabri, flavescentes. Flores ignoti. Fructus irregulariter cylindricus, carpellis tantum partim fertilibus inaequalibus; pedunculus 5–6 mm. longus, dense sericeus; carpella lenticellata, rotundata, nec rostrata, valvis ovatis rotundatis 10–12 mm. longis et 8–10 mm. latis; semina solitaria, rarissime 2, orbiculari-obovoidea, compressa, 8–10 mm. longa et lata, scarlatina, testa interiore late obcordiformi basi fere rotundata apice emarginata ventre profunde et late sulcata dorso convexa nigrescente.

Western Hupeh: Hsing-shan Hsien, open country, alt. 600 m., very rare, September 1907 (No. **361**, type); same locality, roadside, alt. 1100 m., June 8, 1907 (Nos. 361[a], 361[b]).

This is a very distinct species readily distinguished by its leaves which in shape and texture resemble those of *M. salicifolia* Maximowicz, except that in the latter

species they are more or less glaucescent below and the petioles are longer, and by the seeds which have a deep broad groove on the ventral side and are concave at the apex; in *M. salicifolia* and in all other allied species they are only slightly grooved or convex on both sides and truncate at the apex. This new Magnolia forms a shapely tree with many rather slender and spreading branches and a wealth of leaves. It is quite rare and the flowers are unknown. No. 361[b] is a leafy shoot from the stump of a felled tree and the leaves are abnormally (20–22 cm. long, 10–11 cm. wide) large.

Magnolia Dawsoniana Rehder & Wilson, n. sp.

Arbor 8–12-metralis, trunco ambitu 0.5–1.5 m., ramis patentibus; ramuli crassiusculi, hornotini glabri, flavo-virides, annotini purpurascentes, laeves lenticellis sparsis exceptis; gemmae elongatae sparse adpresse sericeo-pilosae. Folia coriacea, obovata v. elliptico-obovata, obtusa v. brevissime acuminata, basi cuneata, rarius rotundata, plerumque obliqua, 8–14 cm. longa et 4.5–7 cm. lata, utrinque glabra, supra nitida, in sicco reticulata, subtus reticulata, pallide viridia v. glaucescentia, maturitate interdum rufescentia, nervis utrinsecus 8–12 supra ut costa leviter elevatis subtus manifeste elevatis; petioli graciles, saepe purpurascentes, glabri, 1.5–3 cm. longi. Flores ignoti. Fructus ramulum apice claviformi-incrassatum terminans, cylindricus, circiter 10 cm. longus et 3–3.5 cm. diam., leviter curvatus, breviter pedunculatus pedunculo crasso glabro; carpella matura numerosa, modice congesta, fere omnia fertilia, lignea, compressa, sparse lenticellata, valvis late ovalibus circiter 1 cm. latis et longis, rotundata; semina plerumque 2 in quoque carpello, irregulariter orbiculari-obovoidea, compressa, 10–12 mm. longa v. lata, aurantiaco-scarlatina, testa interiore nigrescente basi rotundata apice truncata v. rotundata ventre levissime sulcata v. plana dorso convexa.

Western Szech'uan: near Tachien-lu to the south-east, alt. 2000–2300 m. October 1908 (No. **1241**, type); same locality, October 1910 (No. **4116**).

The coriaceous shining green leaves and stout fruit readily distinguish this species which is probably most closely allied to *Magnolia denudata* Desrousseaux. It is possible that the leaves are persistent but our material is insufficient to determine this point. The tree is rare and only known from one rather remote locality. It is in cultivation in the Arnold Arboretum.

For geographical reasons it is possible that the plant referred to as *Michelia* by Franchet in *Nouv. Arch. Mus. Paris*, sér. 2, VIII. 193 (*Pl. David.* II. 11) (1886) belongs here.

Named for Jackson T. Dawson, the superintendent of the Arnold Arboretum, in appreciation of his consummate skill in the propagation of the great mass of material that has reached his hands during his forty-three years of service in this establishment.

Magnolia Sargentiana Rehder & Wilson, n. sp.

Arbor 10–25-metralis, trunco ambitu 1–3 m., coma dense ramosa umbrosa, ramis primariis erecto-patentibus, secundariis patentibus; ramuli crassi, hornotini viridi-flavi, glabri, sparse lenticellati, annotini flavidi v. cinereo-flavidi, vetustiores cinerascentes; gemmae elongatae, oblongo-ovoideae, obtusae, villosae v. glabrescentes, gemmae florales ovoideae, acutae, 3.5–4 cm. longae, flavescenti-villosae. Folia decidua, subcoriacea, obovata v. rarius oblongo-obovata, apice rotundata, emarginata v. brevissime cuspidata, basi anguste v. late cuneata et saepe obliqua, 10–17 cm. longa et 6–10 cm. lata, supra glabra, obscure viridia, nitidula, in sicco manifeste reticulata, subtus pallide viridia, reticulata, dense cinereo-villosa, costa media supra impressa subtus elevata glabra v. glabrescente, nervis utrinsecus 8–12 angulo valde acuto divergentibus fere rectis supra vix prominulis subtus elevatis; petioli graciles, 2–4.5 cm. longi, subteretes, glabri. Flores ignoti, verisimiliter praecoces. Fructus cylindricus, 10–14 cm. longus et 2.5–3 cm. diam. plerumque tortuosus, ante maturitatem carnea; pedunculus crassus, 1–2 cm. longus et 7–10 mm. diam., glaber v. villosus; carpella numerosa, congesta, partim sterilia, lignea, verruculosa, valvis 8–10 mm. altis et 10–15 mm. longis, margine exteriore convexis v. rotundatis, supra plerumque breviter rostratis, infra plerumque rotundatis saepe utrinque cohaerentibus; semina 1–2 in quoque carpello, irregulariter orbiculari-obovoidea, compressa, 10–12 mm. longa v. lata, scarlatina, testa interiore fusco-atra v. atro-cinerea late obovoidea basi acutiuscula v. fere rotundata apice truncata v. leviter emarginata compressa ventre leviter sulcata v. fere plana dorso convexa.

Western Szech'uan: Tsai-erh-ti, 30 miles west of Wa-shan, roadside, thickets, alt. 1800 m., September 17, 1908 (No. **914**, type); Wa-shan, moist woods, alt. 1600–2000 m., very rare, September 1908 (No. **923**).

This remarkably distinct species is perhaps most closely related to *M. Campbellii* Hooker & Thomson which has differently shaped, glabrescent leaves and a very different fruit with more numerous, smaller, less crowded carpels without beaks and smaller seeds. It may also be compared with *M. denudata*, var. *purpurascens* Rehder & Wilson, which is a smaller tree with vinous-purple bark, rather differently shaped leaves, glabrous or glabrescent below, much smaller and more slender fruits with fewer, laxly disposed carpels without beaks. The shape and pubescence of the leaves and the peculiarly stout, elongated fruit with congested, beaked carpels readily distinguish this species from all other members of the genus.

Magnolia Sargentiana grows to a greater size than any other Chinese Magnolia

and is one of the noblest of its family. We have a vivid recollection of seeing in June 1903 at Yin-kou, a hamlet 6 miles west of Wa-shan, a tree of this species which was more than 25 m. tall, with a trunk 3 m. in girth, 2 m. from the ground, and clean for 5 m. where the branches commenced. The branches were very numerous, wide-spreading, forming a massive head, flattened oval in contour. In 1908 a special journey for the purpose of photographing this tree was undertaken but it had been cut down. This was the largest specimen we ever met with, but examples 15–20 m. tall, 2–2.75 m. in girth are (or were in 1908) fairly common west of Wa-shan. The Chinese informed us that the flowers were rosy-red to rose-pink in color and about 8 inches across. From the size of the peduncles and of the scars left by the fallen sepals and petals there is good reason to believe that the size of the flowers must be very large; and undoubtedly this new Magnolia vies with *M. Campbellii* Hooker & Thomson in beauty. It is in cultivation in the Arnold Arboretum. A colloquial name for this tree is "Yin-chin-hwa" and the bark like that of the Yulan, is esteemed as a drug, being known as "Wu-p'i" or more rarely "Hsin-p'i."

For geographical reasons it is possible that the specimen referred to as *Magnolia sp.?* by Franchet in *Nouv. Arch. Mus. Paris*, sér. 2, VIII. 193 (*Pl. David.* II. 11) which is presumably the same as that named *M. conspicua*, var. *emarginata* by Finet & Gagnepain (*Bull. Soc. Bot. France*, LII. Mém. IV. 38), belongs here. But from the meagre description, largely founded on a statement of l'Abbé David, it is quite impossible to determine the point.

A picture of this tree will be found under No. 351 of the collection of Wilson's photographs and also in his *Vegetation of Western China*, No. 305.

Magnolia Sargentiana, var. **robusta** Rehder & Wilson, n. var.

A typo recedit foliis longioribus et angustioribus oblongo-obovatis 14–21 cm. longis et 6–8.5 cm. latis, fructu majore 12–18 cm. longo, carpellis utrinque breviter rostratis 15–18 mm. longis.

Western Szech'uan: Wa-shan, woodlands and open country, alt. 2300 m., September 1908 (No. **923**[a]; tree 12 m. tall, 1.30 m. girth).

This variety differs from the type in its longer and narrower leaves and in the larger fruit. There is also some difference in the seeds: in No. 923[a] they mostly have a very shallow and slight groove on one side, but in No. 914 they are distinctly though not very deeply grooved, while in No. 923 they resemble those of the variety, though according to the leaves and the fruit this number belongs to the type where we have placed it.

Magnolia denudata Desrousseaux in Lamarck, *Encycl. Méth. Bot.* III. 675 (1791), exceptis synonymis *Mokkwuren* Kaempfer *Amoen.* et *Magnolia glauca* Thunberg.

Mokkwuren flore albo Kaempfer, *Amoen.* V. 845 (1712).
Yulan Cibot in Batteux, *Mém. Hist. Chinois.* III. 441 (1778).
Mokkwuren 1. Banks, *Icon. Kaempfer* t. 43 (1791).
Magnolia obovata Thunberg in *Trans. Linn. Soc.* II. 336 (1794), quoad synonymum *Kaempfer Icon.* 43.
Magnolia precia Correa de Serra apud Ventenat, *Jard. Malm.* nota 2, ad. t. 24 (nomen nudum) (1803). — Loiseleur in *Nouv. Duhamel.* II. 224 (180–?). — Schneider, *Ill. Handb. Laubholzk.* 1. 331 (1905).

Magnolia conspicua Salisbury, *Parad. Lond.* I. t. 38 (1806). — Aiton, *Hort. Kew.* ed. 2. III. 330 (1811). — Sims in *Bot. Mag.* XXXIX. t. 1621 (1814). — Maximowicz in *Bull. Acad. Sci. St. Pétersbourg,* XVII. 419 (1872); in *Mél. Biol.* VIII. 508 (1872). — Keisuke Ito, *Fig. Descr. Pl. Koishikawa Bot. Gard.* I. t. 9 (1884). — Hemsley in *Jour. Linn. Soc.* XXIII. 23 (1886). — Diels in *Bot. Jahrb.* XXIX. 321 (1900). — Finet & Gagnepain in *Bull. Soc. Bot. France,* LII. Mém. IV. 38 (1905); *Contrib. Fl. As. Or.* II. 38 (1907).

Magnolia Yulan Desfontaines, *Hist. Arb.* II. 6 (1809). — Bonpland, *Descr. Pl. Malm.* 53, t. 20 (1813). — De Candolle, *Syst.* I. 455 (1818); *Prodr.* I. 81 (1824). — Loddiges, *Bot. Cab.* XII. t. 1187 (1826). — Bunge in *Mém. Acad. Sci. Sav. Étr. St. Pétersbourg,* II. 77 (*Enum. Pl. Chin. Bor.* 3) (1833). — Debeaux, *Fl. Shangh.* 14 (1875).

Magnolia obovata, α. *denudata* De Candolle, *Syst.* I. 457 (1818), excludendis synonymis Kaempferi et Thunbergii; *Prodr.* I. 81 (1824).

Magnolia hirsuta Thunberg, *Pl. Jap. Nov. Sp.* 8 (nomen nudum) (1824), secundum specimen originale.[1]

Yulania conspicua Spach, *Hist. Végét.* VII. 464 (1839).

Magnolia Kobus Siebold & Zuccarini in *Abh. Akad. Münch.* IV. pt. 2, 187 (*Fl. Jap. Fam. Nat.* I. 79) (non De Candolle) (1843), quoad descriptionem.

Kiangsi: Kuling, thickets, alt. 1300 m., July 28, 1907 (No. **1654**[a]; bush 2–4 m. tall, springing from stump of a felled tree); same locality, July 31, 1907 (No. **1654**; bush 2–4 m. tall).

This Magnolia is exceedingly common around Kuling but only in the form of a bush, all the trees having been cut down. Our material consists of leafy shoots only and we have no knowledge of the color of the flowers. The leaves and shoots agree exactly with the typical Yulan and we are disposed to regard this locality as the original home of this familiar plant so widely cultivated in China since the Tang dynasty (A.D. 618–907).

As the nomenclature of this species has been much involved with that of *Magnolia liliflora* Desrousseaux (*M. obovata* Thunberg pr. p., *M. purpurea* Curtis) a

[1] Through the kindness of Professor O. Juel we have received photographs of the Magnolias of Thunberg's herbarium preserved at Upsala; they prove that the conclusions we had arrived at from Thunberg's descriptions and quotations were correct. There are four named specimens of Magnolia in Thunberg's herbarium which are referable to three species of *Magnolia* and to a *Edgeworthia:*

Magnolia obovata (consisting of a branch with leaves) = *M. obovata* Thunberg (*M. hypoleuca* Siebold & Zuccarini).

Magnolia tomentosa (two branchlets, each with a flower) = *M. kobus* De Candolle.

Magnolia hirsuta (two branchlets, each with a flower) = *M. denudata* Desrousseaux.

Magnolia sericea (a leafy branch with a few peduncles from which the flowers have fallen) = *Edgeworthia papyrifera* Siebold & Zuccarini.

The specimen named in 1824 *M. sericea* by Thunberg had served him in 1794 for the description of his *M. tomentosa*, as a comparison of the specimens with the description clearly shows; moreover, the quotation of the Japanese name "Mitsmata" (for Mitsumata = *Edgeworthia papyrifera*) leaves little doubt that this identification is correct.

few words must be said about the source of this confusion. The first mention of Asiatic Magnolias is found in Kaempfer's *Amoenitates exoticae*, where he describes three species under the names (1) Sini . . . vulgo Kobus, which is *M. kobus* De Candolle, (2) Mokkwuren frutex tulipifer and (3) Mokkwuren flore albo. In 1791 Banks published the excellent and very characteristic drawings by Kaempfer of these three species, but made the unfortunate mistake of interchanging the plates of the last two species, referring plate 43 (Mokkwuren 1.) which represents Mokkwuren flore albo to Mokkwuren [frutex tulipifer], and plate 44 (Mokkwuren 2.) which represents Mokkwuren frutex tulipifer to Mokkwuren flore albo. In the same year Desrousseaux in Lamarck, *Encyclopédie méthodique* drew up descriptions of these two species under the names *M. denudata* and *M. liliflora;* his descriptions are based entirely on Kaempfer's plates, except as to the color of the flowers which he took from Kaempfer's description, accepting the quotations as given by Banks; this caused him to attribute to *M. denudata* red flowers and to *M. liliflora* white flowers. He apparently did not compare carefully enough the plates with Kaempfer's original description; if he had he would have detected Banks' error. Kaempfer describes Mokkwuren frutex tulipifer . . . flore Lilio-narcissi rubente as similar to Sini . . . vulgo Kobus, the flowers of which he calls "Tulipam Liliumve album vulgare petalorum numero et magnitudine exprimentibus . . ."; these words undoubtedly refer to a flower with six petals, as plate 44 shows, while in describing Mokkwuren flore albo he says "novemque plerumque petalis," exactly as shown in plate 43. This proves conclusively that Kaempfer did not attribute red flowers to his drawing published by Banks as plate 43, as one is lead to believe from Bank's quotation, and that this plate represents Mokkwuren flore albo, and therefore has white flowers. Maximowicz (l. c.) apparently had arrived at the same conclusions, as he quotes under *M. conspicua:* "Mokkwuren Ic. Kaempf. t. 43 — Mokkwuren fl. albo novem plerumque petalis cet. Kaempf. Amoen. 845," but he does not mention Desrousseaux's names.

The fact that Desrousseaux describes the flowers as red instead of white, owing to a wrong citation in the synonymy, is not a sufficient reason to reject his name. De Candolle made the same mistake in describing *M. kobus;* he quotes *M. gracilis* Salisbury as a synonym and describes the flowers as red, taking the description of the color from the colored plate of *M. gracilis*. There are also numerous other instances where the color of the flowers has been incorrectly given in the original description without affecting the validity of the name. The acceptance of the name *M. denudata* fortunately makes it unnecessary to decide whether *M. precia* Correa or *M. conspicua* Salisbury is the older name.

Magnolia denudata, var. **purpurascens** Rehder & Wilson, n. comb.

Magnolia conspicua, var. *purpurascens* Maximowicz in *Bull. Acad. Sci. St. Pétersbourg*, XVII. 419 (1872); in *Mél. Biol.* VIII. 509 (1872).

Magnolia obovata Keisuke Ito, *Fig. Descr. Pl. Koishikawa Bot. Gard.* I. t. 8 "**Sarasa-renge**" **(non Thunberg)** (1884).

Western Hupeh: Changyang Hsien, woods, thickets and open country, alt. 1300–1800 m., common, April 14 and September 1907 (No. **278**; tree 5–18 m. tall, 0.3–2 m. girth, flowers rosy pink, fragrant); Hsing-shan Hsien, woodlands, alt. 13–1500 m., common, September 1907 (No. **373**; tree 5–18 m. tall, 0.3–2 m. girth); Fang Hsien, moist

woods and thickets, alt. 1300 m. June 22, 1910 (No. 4601; tree 20 m. tall, 2 m. girth); Changyang Hsien, moist woods, April 6, 1900, and September 1901 (Veitch Exped. Nos. 21, 21a and seed No. 688). Szech'uan: without locality, *A. Henry* (No. 5651). — Cultivated in Japan.

This handsome variety is the common Magnolia in western Hupeh and eastern Szech'uan and is fairly plentiful in moist woods and thickets between 1000–1800 m. altitude. The bark on the trunk and older branches is light gray, rather smooth and peals off in small irregular flakes; the branches are ascending and spreading giving the tree a pyramidal outline but commonly in the large trees they are spreading, forming a flat-topped tree. The flowers are saucer-shaped and vary from rose-red without to rose or pale pink within; the stamens and the carpels are also rose-red in color. In early April this Magnolia with its handsome, fragrant flowers is a striking object in the woodland landscape.

A colloquial name is " Yin-tuen shu " and the bark like that of allied species is valued as a drug known as " Mu-pi." Pictures of this tree will be found under Nos. 567, 579 and 0124 of the collection of Wilson's photographs and also in his *Vegetation of Western China*, Nos. 306, 307.

Magnolia denudata, var. **elongata** Rehder & Wilson, n. var.

Arbor 12–15-metralis, trunco ambitu 1–2 m., ramis erecto-patulis. Folia glabra, oblongo-obovata, breviter subito acuminata, basi cuneata, 12–15 cm. longa et 4.5–6 cm. lata. Flores albi; fragrantes; sepala petalaque oblongo-obovata v. spathulato-oblonga, 7–9 cm. longa et 2–4 cm. lata; stamina 1.5–1.8 cm. longa, filamentis 4–6 mm. longis rubris, connectivo apice elongato acuto; gynaecium cum parte staminifera 3–3.5 cm. longum, stigmatibus quam in typo longioribus. Fructus ut in typo.

Western Hupeh: Changyang Hsien, woodlands and open country, alt. 1000–1200 m., April and September 1907 (No. 345, type); same locality, April 1901 (Veitch Exped. No. 444).

This variety resembles the type in its pure white flowers but is readily distinguished by its much larger leaves, sepals, petals and stamens. This Magnolia is rather rare, but occurs occasionally in western Hupeh and eastern Szech'uan. In habit the tree is pyramidal from the ascending and spreading character of the branches.

Here may be added an account of another Chinese species, *M. liliflora* Desrousseaux, the synonymy of which is much involved with that of the preceding species.

Magnolia liliflora Desrousseaux in Lamarck, *Encycl. Méth. Bot.* III. 675 (1791), excepto synonymo: *Mokkwuren flore albo* Kaempfer, *Amoen.*

Mokkwuren " Frutex Tulipifer . . . flore Lilio-narcissi rubente," Kaempfer, *Amoen.* V. 845 (1712).

Magnolia glauca, β. flore magno atropurpureo Thunberg, *Fl. Jap.* 236 (1784), synonymo Fo no ki et descriptione foliorum exceptis.

Mokkwuren 2. Banks, *Icon. Kaempfer* 44 (1791).
Magnolia obovata Thunberg in *Trans. Linn. Soc.* II. 336 (1794), quoad synonymum Mokkwuren et *Icon. Select.* t. 44. — Willdenow, *Spec.* II. 1257 (1799), synonymo *M. obovata* Thunberg et *Icon. Kaempfer* t. 43 excludendis. — Franchet & Savatier, *Enum. Pl. Jap.* I. 16 (1875). — Keisuke Ito, *Fig. Descr. Pl. Bot. Gard. Koishikawa,* I. t. 7 "Shimokuren" (1884). — Hemsley in *Jour. Linn. Soc.* XXIII. 23 (1886). — Finet & Gagnepain in *Bull. Soc. Bot. France,* LII. Mém. IV. 37 (1905); *Contrib. Fl. As. Or.* II. 37 (1907).
Magnolia purpurea Curtis in *Bot. Mag.* XI. t. 390 (1797).
Magnolia discolor Ventenat, *Jard. Malm.* t. 24 (1803).
Magnolia gracilis Salisbury, *Parad. Lond.* II. t. 87 (1807).
Yulania japonica Spach, *Hist. Végét.* VII. 466 (1839).
Buergeria obovata Siebold & Zuccarini in *Abh. Akad. Münch.* IV. pt. II. 187 (*Fl. Jap. Fam. Nat.* I. 79) (1843).
Talauma? Sieboldi Miquel in *Ann. Mus. Lugd.-Bat.* II. 257 (*Prol. Fl. Jap.* 145) (1865–1866).
Talauma obovata Hance in *Jour. Bot.* XX. 2 (non Korthals) (1882).
Magnolia denudata Schneider, *Ill. Handb. Laubholzk.* I. 330 (non Desrousseaux) (1905).

Western Hupeh: Changyang Hsien, wayside thicket, rare, alt. 500–600 m., April 1900 (Veitch Exped. No. 192).

This Magnolia so long cultivated in China and Japan is without doubt a native of China, probably of the warm temperate districts south of the Yangtsze river. It is questionable, however, if the specimen enumerated above is a genuinely wild one or merely from an escape from cultivation.

The fact that Desrousseaux in his otherwise correct description made the mistake of calling the flowers white, is not a sufficient reason to reject his name, as pointed out in the note under *M. denudata,* where also it is explained how he came to make this mistake. The name *M. obovata* used by almost all authors for *M. liliflora* must now replace *M. hypoleuca* Siebold & Zuccarini, for Thunberg's description of *M. obovata* and part of its synonyms refer to *M. hypoleuca* and his type specimen represents this species. Thunberg confused two other species with his *M. obovata,* namely, *M. liliflora* and *M. denudata,* but to *M. liliflora* belong only the reference to Kaempfer's Mokkwuren and that to t. 44 of Kaempfer's *Icones,* and to *M. denudata* Desrousseaux belongs only the reference to t. 43 of Kaempfer's *Icones,* while the description of the leaves as well as the Japanese synonym Fo-no-ki (now transliterated Ho-no-ki) and the synonym *M. glauca* (at least in part) belong to *M. hypoleuca* Siebold & Zuccarini. Willdenow (l. c.) was apparently the first to change Thunberg's description of *M. obovata* to make it apply to the leaves of *M. liliflora,* and all later authors have followed him.

CONSPECTUS SPECIERUM ASIATICARUM.[1]

Of some of the species (Nos. 17, 21, 22) the flowers, and of No. 18 the leaves, are unknown; these have been placed near the species to which they seem most closely related according to their other characters.

[1] *Magnolia Martini* Léveillé in *Bull. Soc. Agric. Sci. Sarthe,* LIX. 321 (1904); in Fedde *Rep. Nov. Sp.* VI. 374 (1909), from Kwei-chou has been omitted, as we have seen no specimens and the description is too incomplete; it is probably not a Magnolia, but a Michelia.

Fructus oblongus v. ovoideus, symmetricus v. fere symmetricus; carpella subaequalia, congesta, apice plus minusve truncata et manifeste rostrata, aperta plerumque naviculiformia valvis supra et infra cohaerentibus. Flores coetanei.
Pedunculus brevis et crassus; fructus erectus, 10–20 cm. longus, symmetricus, oblongo-ovoideus v. oblongo-cylindricus.
Folia persistentia, elliptica v. elliptico-oblonga, acuta v. obtusiuscula, glabra. Carpella pubescentia, juniora saltem.
Carpella matura breviter rostrata. Folia basi rotundata, subtus glaucescentia, 10–20 cm. longa. . . . . 1. *M. Delavayi.*
Carpella matura longe rostrata rostro superiore quam carpellum duplo longiore. Folia basi cuneata, subtus pallide viridia, 14–30 cm. longa. 2. *M. pterocarpa.*
Folia decidua, oblongo-oblanceolata, breviter acuminata, 30–45 cm. longa, nervis utrinsecus 20–30. Carpella glabra altiora quam longiora.
Fructus cylindrico-oblongus, 14–20 cm. longus. Ramuli purpurascentes. 3. *M. obovata.*
Fructus oblongo-ovoideus, 10–12 cm. longus. Ramuli flavescentes. 4. *M. officinalis.*
Pedunculus elongatus, satis gracilis; fructus saepe nutans, ovoideus, 4–7 cm. longus, interdum leviter asymmetricus et curvatus; carpella longiora quam alta, aperta eximie naviculiformia.
Folia ovalia v. elliptica, subtus sparse adpresse pubescentia v. fere glabra.
Pedunculi petiolique glabri v. fere glabri; carpella numerosa. Folia 10–18 cm. longa, nervis utrinsecus 10–15. . . . . 5. *M. Watsonii.*
Pedunculi petiolique pubescentes; carpella pauca.
Folia subtus ad venas fulvo-pubescentia, nervis utrinsecus 9–12. Petala 6–7 cm. longa. . . . . 6. *M. globosa.*
Folia subtus ad venas albido-pubescentia, nervis utrinsecus 6–9. Petala 4–6 cm. longa. . . . . 7. *M. parviflora.*
Folia oblongo-lanceolata v. elliptico-oblonga, 7–12 cm. longa. Flores albi.
Folia subtus ad costam dense rufo-pubescentia, ceterum glabra v. fere glabra. . . . . 8. *M. Nicholsoniana.*
Folia subtus tota facie dense sericeo-tomentosa. . . . . 9. *M. Wilsonii.*
Fructus cylindricus, rarius ovoideus, asymmetricus, saepe valde curvatus et tortuosus; carpella vix congesta, sterilibus et minoribus intermixtis, interdum fertilia tantum pauca, apice rotundata, valvis reflexis ovalibus v. suborbicularibus (saepe breviter et tenuiter rostrata in No. 22).
Flores coetanei; pedicellus elongatus; sepala et petala 9, subaequalia.
Folia decidua. Fructus obovoideus v. oblongus, 4–8 cm. longus.
Carpella pubescentia. Folia oblonga, acuminata, breviter petiolata, subtus glaucescentia ad costam villosa, 16–25 cm. longa. . 10. *M. Maingayi.*
Carpella glabra. Folia subtus glabra, 12–18 cm. longa. 11. *M. Gustavii.*
Folia persistentia.
Sepala et petala alba. Fructus cylindricus carpellis numerosis, 8–14 cm. longus.
Pedunculi et folia glabra; folia oblongo-obovata, 20–60 cm. longa. 12. *M. Henryi.*
Pedunculi et folia subtus pubescentia, saltem juniora, plerumque elliptico-oblonga. Gynaeceum breviter stipitatus.
Folia subtus initio puberula, 14–20 cm. longa. . . . 13. *M. Pealiana.*
Folia subtus initio dense sericeo-tomentosa, 22–35 cm. longa. 14. *M. Griffithii.*

Sepala 3 virescentia, petalis 6 candidis subaequilonga; gynaeceum carpellis paucis. Folia elliptica circiter 15 cm. longa. . . . . 15. *M. coco.*
Flores precoces, breviter pedicellati. Folia decidua.
Sepala 3, petalis 6 multo minora (flores ignoti in No. 17).
Folia infra medium latiora, plerumque oblongo-lanceolata, membranacea, 8–15 cm. longa.
Folia subtus glaucescentia, 8–15 cm. longa. Semina non sulcata. 16. *M. salicifolia.*
Folia subtus pallide viridia, 10–18 cm. longa. Semina ventre manifeste sulcata. . . . . 17. *M. aulacosperma.*
Folia supra medium latiora, obovata v. obovato-oblonga chartacea (ignota in No. 18).
Flores albi, petalis obovatis circiter 5 cm. longis.
Antherae filamentis subaequilongae. . . . . 18. *M. Biondii.*
Antherae filamentis multo longiores. . . . . 19. *M. kobus.*
Flores extus purpurei petalis oblongis 8–9 cm. longis. Folia obovata, breviter acuminata. . . . . 20. *M. liliflora.*
Sepala et petala subaequalia, omnia petaloidea (flores ignoti in Nos. 21 and 22).
Folia obovata v. obovato-oblonga, basi cuneata, nervis utrinsecus 7–10.
Folia plerumque obovata, 8–20 cm. longa.
Folia subtus glabra, fulvescentia, supra nitida, fere coriacea, 8–14 cm., longa. . . . . 21. *M. Dawsoniana.*
Folia subtus pubescentia, supra vix nitida.
Folia subtus densa villosa, plerumque obtusa v. emarginata, 10–17 cm. longa. . . . . 22. *M. Sargentiana.*
Folia subtus sparse adpresse pubescentia 8–14 cm. longa, breviter acuminata. Sepala petalaque 9. . . . . 23. *M. denudata.*
Folia obovata-oblonga, acuta v. obtusiuscula, 5–8 cm. longa. Sepala petalaque 12–18, angusta. . . . . 24. *M. stellata.*
Folia elliptica v. elliptico-oblonga, acuta v. acuminata, 10–25 cm. longa, utrinsecus nervis 10–16. Sepala petalaque 12–15, obovata. 25. *M. Campbellii.*

ENUMERATIO SPECIERUM ASIATICARUM.

1. **Magnolia Delavayi** Franchet, *Pl. Delavay.* I. 33, t. 9, 10 (1889). — Finet & Gagnepain in *Bull. Soc. Bot. France,* LII. Mém. 36 (1905); *Contrib. Fl. As. Or.* II. 36 (1907). — Wilson in *Gard. Chron.* ser. 3, XXXIX. 234 (1906). — Sprague in *Bot. Mag.* CXXXV. t. 8282 (1909).

China: Yunnan.

2. **Magnolia pterocarpa** Roxburgh, *Coromandel Pl.* III. t. 266 (1819). — King in *Ann. Bot. Gard. Calcutta,* III. 207, t. 53 (1891). — Gamble, *Manual Ind. Timbers,* 9 (1902). — Finet & Gagnepain in *Bull. Soc. Bot. France,* LII. Mém. 4, 36 (1905); *Contrib. Fl. As. Or.* II. 36 (1907). — Brandis, *Ind. Trees,* 6 (1906).

Liriodendron grandiflorum Roxburgh, *Hort. Beng.* 43 (nomen nudum) (1814); *Fl. Ind.* II. 653 (1832).
Michelia macrophylla D. Don, *Prodr. Nepal.* 226 (1825).
Sphenocarpus Wallich, *Cat.* No. 975 corrig. p. 236 (nomen nudum) (1828).
Talauma Roxburghii G. Don, *Gen. Syst.* I. 85 (1831).
Magnolia sphenocarpa Wallich, *Cat.* 27, No. 975 (1828). — Hooker f. & Thomson, *Fl. Ind.* I. 78 (1855); in Hooker f., *Fl. Brit. Ind.* I. 41 (1872).

Tropical Himalaya: Nepal eastwards to Assam.

3. **Magnolia obovata** Thunberg in *Trans. Linn. Soc.* II. 336 (1794), excepto synonymo Mokkwuren; *Pl. Jap. Nov. Sp.* 8 (1824), sine descriptione, secundum specimen originale.[1]

Magnolia glauca Thunberg, *Fl. Jap.* 236 (non Linnaeus) (1784), quoad descriptionem speciei et synonymum *Fo-no-ki*.
Magnolia hypoleuca Siebold & Zuccarini in *Abh. Akad. Münch.* IV. pt. II. 187 (*Fl. Jap. Fam. Nat.* I. 79) (1843). — Miquel in *Ann. Mus. Lugd.-Bat.* II. 258 (*Prol. Fl. Jap.* 146) (1865–1866). — Maximowicz in *Bull. Acad. Sci. St. Pétersbourg*, XVII. 419 (1872); in *Mél. Biol.* VIII. 509 (1872). — Franchet & Savatier *Enum. Pl. Jap.* I. 17 (1875). — Keisuke Ito, *Fig. Descr. Pl. Bot. Gard. Koishikawa*, I. t. 14, 15 (1884). — Sargent in *Garden & Forest*, VI. 64 (1893); *Forest Fl. Jap.* 8 (1894). — Shirasawa, *Icon. Ess. For. Jap.* I. t. 39, fig. 13–29 (1900). — Finet & Gagnepain in *Bull. Soc. Bot. France*, LII. Mém. IV. 37 (1905); *Contrib. Fl. As. Or.* II. 37 (1907). — Skan in *Bot. Mag.* CXXXII. t. 8077 (1906).

Japan.

As pointed out already under *M. liliflora* Desrousseaux, the description of Thunberg's *M. obovata* refers exclusively to the plant described later as *M. hypoleuca* by Siebold & Zuccarini, and therefore, *M. obovata* must be accepted as the name for this species. *Magnolia glauca* Thunberg, not Linnaeus, also belongs principally to this species, for the description of the leaves, which constitutes in fact the whole specific description, refers only to *M. obovata* and was probably based on the specimen named later *M. obovata* which would then constitute the type of his *M. glauca*. The synonyms, however, quoted under the two varieties of *M. glauca*, are referable to five different species including the type: 1. *M. glauca* Linnaeus is a very different American species; 2. Sini et Konfusi, vulgo Kobus is *M. kobus* De Candolle; 3. Mitsmata is *Edgeworthia papyrifera* Siebold & Zuccarini; 4. Mokkwuren is *M. liliflora* Desrousseaux; 5. Fo-no-ki is *M. obovata*, and corresponds to the description.

4. **Magnolia officinalis** Rehder & Wilson. See p. 391.

Magnolia officinalis, var. **biloba** Rehder & Wilson. See p. 392.

5. **Magnolia Watsonii** Hooker f. in *Bot. Mag.* CXVII. t. 7157 (1891). — *Gard. Chron.* ser. 3, XVI. 188, fig. 29 (1894). — Kort in *Rev. Hort. Belge*, XXXI. 258, fig. 21 (1905).

Japan: cultivated, not yet found growing wild.

6. **Magnolia globosa** Hooker f. & Thomson. See p. 393.

Magnolia globosa, var. **sinensis** Rehder & Wilson. See p. 393.

7. **Magnolia parviflora** Siebold & Zuccarini in *Abh. Akad. Münch.* IV. pt. II. 187 (*Fl. Jap. Fam. Nat.* I. 79) (1843). — Miquel in *Ann. Mus. Lugd.-Bat.* II. 258 (*Prol. Fl. Jap.* 146) (1865–1866). — Maximowicz in *Bull. Acad. Sci. St. Pétersbourg*, XVII. 419 (1871); in *Mél. Biol.* VIII. 509 (1872). — Franchet & Savatier, *Enum. Pl. Jap.* I. 16 (1875). — Keisuke Ito, *Fig. Descr. Pl. Bot. Gard. Koishikawa*, I. t. 13 (1884). — Hooker f. in *Bot. Mag.* CXXI. t. 7411 (1895). — Finet & Gagnepain in *Bull. Soc. Bot. France*, LII. Mém. IV. 39 (1905); *Contrib. Fl. As. Or.* II. 39 (1907). — Shirasawa, *Icon. Ess. For. Jap.* II. t. 17, fig. 1–5 (1908).

[1] See footnote on p. 400.

Magnolia Oyama Kort in *Rev. Hort. Belge*, XXXI. 258 (1905).

Japan, Korea.

8. **Magnolia Nicholsoniana** Rehder & Wilson. See p. 394.

9. **Magnolia Wilsonii** Rehder. See p. 395.

10. **Magnolia Maingayi** King in *Jour. Asiat. Soc. Bengal*, LVIII. pt. II. 369 (1890); in *Ann. Bot. Gard. Calcutta*, III. 208, t. 45 B, fig. 6–10 (1891). — Finet & Gagnepain in *Bull. Soc. Bot. France*, LII. Mém. IV. 36 (1905); *Contrib. Fl. As. Or.* II. 36 (1907).

Malacca and Penang (ex King).

11. **Magnolia Gustavi** King in *Ann. Bot. Gard. Calcutta*, III. 209, t. 61 (1901). — Finet & Gagnepain in *Bull. Soc. Bot. France* LII. Mém. IV. 36 (1905); *Contrib. Fl. As. Or.* II. 36 (1907). — Brandis, *Ind. Trees*, 6 (1906).

Upper Assam (ex King).

12. **Magnolia Henryi** Dunn in *Jour. Linn. Soc.* XXXV. 484 (1903). — Wilson in *Gard. Chron.* ser. 3, XXXIX. 234 (1906).

China: Yunnan.

13. **Magnolia Pealiana** King in *Ann. Bot. Gard. Calcutta*, III. 210, t. 59 (1891).

Michelia Pealiana Finet & Gagnepain in *Bull. Soc. Bot. France*, LII. Mém. IV. 42 (1905); *Contrib. Fl. As. Or.* II. 42 (1907).

Assam: Makum Forest (ex King).

14. **Magnolia Griffithii** Hooker f. & Thomson in Hooker f., *Fl. Brit. Ind.* I. 41 (1872). — King in *Ann. Bot. Gard. Calcutta*, III. 209, t. 48, 49 (1891).

Michelia Griffithii Finet & Gagnepain in *Bull. Soc. Bot. France*, LII. Mém. IV. 42 (1905); *Contrib. Fl. As. Or.* II. 42 (1907).

Assam: Sylhet (ex King).

15. **Magnolia coco** De Candolle, *Syst.* I. 459 (1818); *Prodr.* I. 81 (1824).

Liriodendron Coco Loureiro, *Fl. Cochin.* 347 (1790).
Magnolia pumila Andrews, *Bot. Rep.* IV. t. 226 (1802–1803). — Ventenat, *Jard. Malm.* t. 37 (1803). — Sims in *Bot. Mag.* XXV. t. 977 (1807). — De Candolle, *Syst.* I. 453 (1818); *Prodr.* I. 81 (1824). — Roxburgh, *Fl. Ind.* II. 655 (1832). — Hance in *Ann. Sci. Nat.* sér. 5, V. 205 (*Advers. Stirp. Crit.* 6) (1866). — Hemsley in *Jour. Linn. Soc.* XXIII. 24 (1886). — Finet & Gagnepain in *Bull. Soc. Bot. France*, LII. Mém. IV. 36 (1905); *Contrib. Fl. As. Or.* II. (1907); in Lecomte, *Fl. Indo-Chine*, I. 36 (1907). — Dunn & Tutcher in *Kew Bull. Misc. Inform.* Add. ser. X. 28 (*Fl. Kwangtung & Hongkong*) (1912).
Magnolia? Coco De Candolle *Syst.* I. 459 (1818); *Prodr.* I. 81 (1824).
Magnolia? coco G. Don, *Gen. Syst.* I. 84 (1831).
Talauma pumila Champion in *Hooker's Jour. Bot. Kew Gard. Misc.* III. 256 (non Blume [1]) (1851).
Magnolia Championi Bentham, *Fl. Hongk.* 8 (1861).
Magnolia pumila, var. *Championi* Finet & Gagnepain in *Bull. Soc. Bot. France*, LII. Mém. IV. 36 (1905); *Contrib. Fl. As. Or.* II. 36 (1905).

[1] *Talauma pumila* Blume from Java probably does not belong here.

Hongkong.—Commonly cultivated in Canton and elsewhere in southern China and in Tonking.

16. **Magnolia salicifolia** Maximowicz in *Bull. Acad. Sci. St. Pétersbourg*, XVII. 419 (1872); in *Mél. Biol.* VIII. 509 (1872). — Franchet & Savatier, *Enum. Pl. Jap.* I. 16 (1875). — Sargent in *Garden & Forest*, VI. 65, fig. 12 (1893); *Forest Fl. Jap.* 10, fig. 4 (1894). —Shirasawa, *Icon. Ess. For. Jap.* I. t. 40, fig. 18–30 (1900). — Finet & Gagnepain in *Bull. Soc. Bot. France*, LII. Mém. IV. 39 (1905); *Contrib. Fl. As. Or.* II. 39 (1907). — Hesse in *Möller's Deutsch. Gärtn.-Zeit.* XXV. 542, fig. (1910). —*Gard. Chron.* ser. 3, LI. 222, fig. 99 (1912). —Sprague in *Bot. Mag.* CXXXIX. t. 8483 (1913).

Buergeria salicifolia Siebold & Zuccarini in *Abh. Akad. Münch.* IV. pt. 2, 187 (*Fl. Jap. Fam. Nat.* I. 79) (1843).
Talauma? salicifolia Miquel in *Ann. Mus. Lugd.-Bat.* II. 258; *Prol. Fl. Jap.* 145 (1865–1866).

Japan.

17. **Magnolia aulacosperma** Rehder & Wilson. See p. 396.

18. **Magnolia Biondii** Pampinini in *Nuov. Giorn. Bot. Ital.* n. ser. XVII. 275 (1910); XVIII. t. 3 (1911).

Magnolia obovata Pavolini in *Nuov. Giorn. Bot. Ital.* n. ser. XV. 403 (non Thunberg) (1908).

China: Shensi.

19. **Magnolia kobus** De Candolle, *Syst.* I. 456 (1818), excludendo synonymo: *Magnolia gracilis; Prodr.* I. 81 (1824).—Siebold & Zuccarini in *Abh. Akad. Münch.* IV. pt. II. 187 (*Fl. Jap. Fam. Nat.* I. 79) (1843), excludenda descriptione. — Miquel in *Ann. Mus. Lugd.-Bat.* II. 258 (*Prol. Fl. Jap.* 146) (1865–1866). — Maximowicz in *Bull. Acad. Sci. St. Pétersbourg*, XVII. 417 (pro parte) (1872); in *Mél. Biol.* VIII. 507 (1872). — Franchet & Savatier, *Enum. Pl. Jap.* I. 16 (1875). — Keisuke Ito, *Fig. Descr. Pl. Bot. Gard. Koishikawa*, I. t. 10 (1884). —Sargent, *Trees & Shrubs*, II. 57, t. 126 (1908). — Shirasawa, *Icon. Ess. For. Jap.* I. t. 39, fig. 1–12 (1900). — Finet & Gagnepain in *Bull. Soc. Bot. France*, LII. Mém. IV. 38 (1905); *Contrib. Fl. As. Or.* II. 38 (1907). — Bean in *Bot. Mag.* CXXXVIII. t. 8428 (1912).

Sini et Confusi, vulgo Kobus Kaempfer, *Amoen.* V. 845 (1712).
Magnolia glauca, α. flore albo Thunberg, *Fl. Jap.* 236 (1784), synonymo Mitsmata et discriptione foliorum exceptis.
Kobus Banks, *Icon. Kaempfer* t. 42 (1791).
Magnolia tomentosa Thunberg in *Trans. Linn. Soc.* II. 336 (1794), quoad synonymum *Kobus; Icon. Pl. Jap.* V. t. 8 (sine descriptione) (1805); *Pl. Jap. Nov. Sp.* 8 (nomen nudum) (1824), secundum specimen originale in Herb. Thunbergiano.[1]
Yulania Kobus Spach, *Hist. Vég.* VII. 467 (1839).
Magnolia Thurberi Parsons in *Garden*, XIII. 572 (nomen nudum) (1878).—Hort. ex Sargent in *Garden & Forest*, VI. 65 (1893), quasi synon. *Magnoliae Kobus*.

[1] The description of *M. tomentosa* which refers only to leaves and peduncles, applies to *Edgeworthia papyrifera*, as Thunberg's type specimen shows, which he later named *M. sericea* (*Pl. Jap. Nov. Sp.* 8 [nomen nudum] [1824]). See also footnote on p. 400.

Magnolia Kobushi Mayr, *Fremdl. Wald- und Parkbäume*, 484, fig. 207 (1906).

Japan.

Magnolia kobus, var. **borealis** Sargent, *Trees & Shrubs*, II. 57 (1908).

Magnolia Kobus Maximowicz in *Bull. Acad. Sci. St. Pétersbourg*, XVII. 417 (1872), quoad specimina ex Hokkaido; in *Mél. Biol.* VIII. 507 (1872). — Sargent in *Garden & Forest*, VI. 64, fig. 11 (1893); *Forest Fl. Jap.* 9, fig. 3 (1894).

Japan: Hokkaido.

20. **Magnolia liliflora** Desrousseaux. See p. 402.

21. **Magnolia Dawsoniana** Rehder & Wilson. See p. 397.

22. **Magnolia Sargentiana** Rehder & Wilson. See p. 398.

    Magnolia Sargentiana, var. **robusta** Rehder & Wilson. See p. 399.

23. **Magnolia denudata** Desrousseaux. See p. 399.

    Magnolia denudata, var. **purpurascens** Rehder & Wilson. See p. 401.

    Magnolia denudata, var. **elongata** Rehder & Wilson. See p. 402.

24. **Magnolia stellata** Maximowicz in *Bull. Acad. Sci. St. Pétersbourg*, XVII. 419 (1872); in *Mél. Biol.* VIII. 509 (1872). — Franchet & Savatier, *Enum. Pl. Jap.* I. 15 (1875). — Hooker f. in *Bot. Mag.* CIV. t. 6370 (1878). — Keisuke Ito, *Fig. Descr. Pl. Bot. Gard. Koishikawa* I. t. 11, 12 (1884). — Finet & Gagnepain in *Bull. Soc. Bot. France*, LII. Mém. IV. 37 (1905); *Contrib. Fl. As. Or.* II. 37 (1907).

Buergeria stellata Siebold & Zuccarini in *Abh. Akad. Münch.* IV. pt. II. 186 (*Fl. Jap. Fam. Nat.* I. 78) (1843).

Talauma stellata Miquel in *Ann. Mus. Lugd.-Bat.* II. 257; *Prol. Fl. Jap.* 145 (1865–1866).

Magnolia Halleana Parsons in *Garden*, XIII. 572, t. (1878).

Japan.

Magnolia Campbellii Hooker f. & Thomson in Hooker f., *Ill. Himal. Pl.* t. 4, 5 (1855); *Fl. Ind.* I. 77 (1855); in Hooker f., *Fl. Brit. Ind.* I. 41 (1872). — Gamble, *Trees & Shrubs of Darjeeling*, 2 (1877); *Manual Ind. Timbers*, 5 (1881). — Hooker f. in *Bot. Mag.* CXI. t. 6793 (1885). — King in *Ann. Bot. Gard. Calcutta*, III. 208 (1891). — Finet & Gagnepain in *Bull. Soc. Bot. France*, LII. Mém. IV. 37 (1905); *Contrib. Fl. As. Or.* II. 37 (1907). — Brandis, *Ind. Trees*, 6 (1906).

Magnolia Griffith, *Posth. Papers*, II. 152 (1848); *Icon. Pl. Asiat.* IV. t. 656 (1854).

Temperate Himalaya: Bhootan and Sikkim.

MICHELIA L.

Michelia sp.

Eastern Szech'uan: Kai Hsien, roadside, alt. 1000–1300 m., one tree only, July 1910 (No. 4598; tree 24 m. tall, girth 2.6 m.).

A handsome tree probably belonging to a new species, but our material, consisting only of leafy shoots and very young carpels, is insufficient for determination. The

coriaceous leaves are oblong-oblanceolate, 14–15 cm. long, abruptly acute or shortly acuminate, narrowed at the base, shining green above and glaucescent and reticulate beneath and sparsely coated with short, villose pubescence, particularly on the veins; the gynaeceum is villose. A picture of this tree will be found under No. 0200 of the collection of Wilson's photographs.

LIRIODENDRON L.

Liriodendron chinense Sargent, *Trees & Shrubs*, I. 103, t. 52 (1903). — Hemsley in *Gard. Chron.* ser. 3, XXXIV. 370 (1903); in *Hooker's Icon.* XXVIII. t. 2785 (1905). — Wilson in *Flora & Sylva*, III. 202 (1905). — Schneider, *Ill. Handb. Laubholzk.* I. 340, fig. 218 d (1905). — Bean in *Gard. Chron.* ser. 3, XLIV. 429, fig. 175 (1908).

Liriodendron sp. nov.? Le Marchant Moore in *Jour. Bot.* XIII. 225 (1875).
Liriodendron Tulipifera, var.? *chinense* Hemsley in *Jour. Linn. Soc.* XXIII. 25 (1886). — Finet & Gagnepain in *Bull. Soc. Bot. France*, LII. Mém. IV. 48 (1905); *Contrib. Fl. As. Or.* II. 48 (1907).
Liriodendron Tulipifera, var. *sinensis* Diels in *Bot. Jahrb.* XXIX. 322 (1900).

Kiangsi: Kuling, thickets, alt. 1300 m., July 31, 1907 (No. **1630**; tree 6–12 m. tall, girth 0.5–2 m., bark gray, rough and fissured on old trees); Kiukiang, 1873, *G. Shearer*. Western Hupeh: Fang Hsien, thickets and woodlands, alt. 1000–1500 m., May 19 and October 1907 (No. **413**, in part; tree 8–16 m. tall, girth 0.6–2.3 m., flowers yellow within, greenish without); same locality, October 1910 (No. **413**, in part; tree 16 m. tall, girth 1.3 m.); Patung Hsien, woods, alt. 1300 m., June 1907 (No. **413**, in part; tree 6–10 m. tall); without locality, June and September, 1900 (Veitch Exped. No. 1049); without locality, *A. Henry* (No. 5836[a]); Chienshih Hsien, *A. Henry* (No. 5836).

Formerly this tree was very abundant on the Lushan mountains in the neighborhood of Kiukiang, but all the large trees have been cut down and only odd specimens and dense bushes remain. In north-western Hupeh it is fairly common in the moist woodlands. Compared with the American species the Chinese Liriodendron is relatively a small tree. A colloquial name in Hupeh is "Wo-chang-chiu" = Goose-foot, which has reference to the shape of the leaves. A picture of this tree will be found under No. 0114 of the collection of Wilson's photographs.

KADSURA Juss.

Kadsura peltigera Rehder & Wilson, n. sp.

Frutex scandens 2.5–4 m. altus, glaber; ramuli teretes, lenticellati, annotini purpureo-fusci; gemmae ovoideae, acutae, perulis paucis ciliatis persistentibus. Folia coriacea, oblonga v. oblongo-oblanceolata,

rarius elliptico-oblonga v. elliptico-obovata, acuminata, basi cuneata, remote denticulata, rarius integra, 5–10 cm., plerumque 6–9 cm. longa et 2–4 cm. lata, glabra, supra atroviridia, nitida, subtus pallide viridia, nervis utrinsecus 10–15 in sicco utrinque leviter elevatis, venulis minus elevatis; petioli 10–15 cm. longi. Flores axillares, solitarii, lutei, circiter 2.5 cm. diam.; pedicelli satis validi, 1–8 cm., plerumque 2.5–5 cm. longi, leviter angulati, recurvi, bracteis paucis ovatis acutis minutis remotis instituti; sepala numerosa, exteriora minuta, orbicularia, media et interiora late ovalia v. obovata, 8–13 mm. longa et 8–9 mm. lata, rotundata, ciliolata, brevissime unguiculata; androecium subglobosum, 8 mm. longum et 7 mm. diam.; gynaeceum subglobosum, 7 mm. longum et 6 mm. diam.; carpella numerosa, stigmate discoideo circiter 1 mm. diam., appendicibus ventralibus lamelliformibus linearibus. Fructus desideratur.

Kiangsi: below Kuling, thickets, 300 m., August 1, 1909 (No. **1736**, type); same locality, alt. 1300 m., among rocks, July 28, 1907 (Nos. **1735**, **1737**). Yunnan: Szemao, forests, alt. 1300–1600 m., *A. Henry* (Nos. 12312, 12312[a]).

This species is closely related to *K. discigera* Finet & Gagnepain, which has triangular appendages on the carpels, petals 1.7–2.5 cm. long and 1.2 cm. broad, shorter, non-bracteolate peduncles and larger leaves; from all the other species it differs in its discoid stigma. The specimens from Yunnan have generally broader, elliptic to elliptic-oblong leaves.

Kadsura sp.

Western Szech'uan: Yachou Fu, thickets, alt. 800 m., October 1908 (No. **1116**; climber 6 m., fruit crimson).

With only leafy shoots and ripe seeds it is impossible to determine this specimen.

SCHISANDRA Michx.

Schisandra grandiflora Hooker f. & Thomson in Hooker f., *Fl. Brit. Ind.* I. 44 (1872). — Gamble, *Trees & Shrubs Darjeeling*, 3 (1877). — Franchet, *Pl. Delavay.* I. 34 (1889). — King in *Ann. Bot. Gard. Calcutta*, III. 219 t. 69 a. (1891). — Finet & Gagnepain in *Bull. Soc. Bot. France*, LII. Mém. IV. 48 (pro parte) (1905); *Contrib. Fl. As. Or.* II. 48 (pro parte) (1907).

Kadsura grandiflora Wallich, *Tent. Fl. Nepal.* 10, t. 14 (1824).
Sphaerostema grandiflorum Blume, *Fl. Jav.* III. Fam. XII. 17 (*Schizandreae*) (1828). — Hooker f. & Thomson, *Fl. Ind.* 1, 84 (1855).

Western Hupeh: Fang Hsien, thickets 1600–2000 m., May and September 1907 (No. **318**; climber 4 m., flowers flesh-pink, fruit red); Hsing-shan Hsien, Wên-tsao-shan, alt. 2000 m., May 31, 1907 (No. **263**, flowering specimens only; climber 3–4 m., flowers deep, fleshy pink); boundary of Fang and Hsing-shan Hsiens, woodlands, alt. 2300–2600 m., June 13, 1910 (No. **4574**; climber 3–6 m., flowers flesh-pink); without locality, June 1901 (Veitch Exped. No. 2085).

Not common in western Hupeh and we have seen no specimens from western Szech'uan.

Schisandra rubriflora Rehder & Wilson, n. sp.

Schizandra chinensis, var. *rubriflora* Franchet in *Nouv. Arch. Mus. Paris*, sér. 2, VIII. 192 (*Pl. David.* II. 10) (1886).

Schizandra grandiflora Finet & Gagnepain in *Bull. Soc. Bot. France*, LII. Mém. IV. 48 (pro parte, non Hooker f. & Thompson) (1905); *Contrib. Fl. As. Or.* II. 48 (1907).

Frutex scandens, 3–6 m. altus; ramuli hornotini glabri, annotini lenticellati, satis robusti, fusco-purpurei v. fusco-cinerei; gemmae ovoideae, acutae, perulis paucis rotundatis acuminulatis sparse ciliolatis. Folia decidua, obovata v. oblongo-obovata, acuminata, saepius subito, basi in petiolum attenuata, sinuato-denticulata, interdum fere integra, dentibus minutis calloso-mucronatis, 6–15 cm., plerumque 8–12 cm. longa et 3–7 cm., plerumque 4–6 cm. lata, supra atroviridia, subtus pallide viridia, nervis utrinsecus 5–8 subtus leviter elevatis; petioli supra canaliculati glabri, 2–4 cm. longi. Flores axillares, solitarii, fusco-rubri, 2–3 cm. diam., in axillis perularum baseos innovationum rarius in axillis foliorum inferiorum; pedicelli graciles, 2–5 cm. longi, glabri; sepala in floribus masculis plerumque 5–7, exteriora anguste obovata, obtusa, basi cuneata, 10 mm. longa et 5 mm. lata, interiora late obovata, 10–12 mm. longa et 7–9 mm. lata, rotundata, basi subito angustata; sepala in floribus femineis 5, late obovata v. suborbicularia, 10–12 mm. longa et 8–12 mm. lata; androecium 8–10 mm. longum; stamina 10 v. plura, 4.5–6 mm. longa, filamentis distinctis complanatis 3–4.5 mm. longis 1 mm. latis, antherae loculis marginalibus connectivo lato separatis apice obtuso conniventibus; gynaeceum conico-ovoideum, 9–10 mm. longum; carpella numerosa, distincta, obovoidea, circiter 2 cm. longa, glabra, stigmate sessili lato ciliato. Fructus cylindricus, pendulus, 10–15 cm. longus, kermesinus; pedicellus 6–8 cm. longus; rhachis carnosa, rubescens; carpella subglobosa, 10–12 mm. diam.; semina 2 in quoque carpello,

suborbiculari-reniformia, leviter compressa, 3–3.5 mm. lata, testa flavo-brunnea laevi nitente.

Western Szech'uan: west of Kuan Hsien, Niu-tou-shan, thickets, alt. 2000–2600 m., June 20, 1908 (No. **921**[b], type); south-east of Ta-chien-lu, thickets, alt. 2000–2300 m., June 1908 (No. **921**, in part); near Mao-chou, Chiu-ting-shan, thickets, alt. 2100 m., May 22, 1908 (No. **921**, in part); Wa-shan, alt. 2000–2500 m., September 18, 1908 (No. **921**, in part); west and near Wên-ch'uan Hsien, alt. 1300–2000 m., October 1908 (No. **921**[a]); west of Kuan Hsien, Pan-lan-shan, alt. 2300–3000 m., October 1910 (No. **4289**).

This species is most closely related to *Schisandra grandiflora* Hooker f. & Thomson, which has oblong-lanceolate leaves, very pale, often sub-glaucescent below, 9–12 white sepals and petals, obtuse or acutish stamens, rarely rounded at the summit and beaked carpels. A picture of this plant will be found under No. 356 of the collection of Wilson's photographs and also in his *Vegetation of Western China*, No. 473.

Schisandra Henryi Clarke in *Gard. Chron.* ser. 3, XXXVIII. 162, fig. 55 (1905). — Schneider, *Ill. Handb. Laubholzk.* II. 928, fig. 580 (1912).

Schizandra hypoglauca Léveillé in Fedde, *Rep. Nov. Sp.* IX. 459 (1911).

Western Szech'uan: Mt. Omei, June 1904 (Veitch Exped. No. 4722). Western Hupeh: without locality, *A. Henry* (No. 6226).

This is a rather rare species, easily recognized by its prominently winged shoots, by the glaucescent under surface of the leaves and by the creamy-yellow flowers on long and slender pedicels.

Schisandra glaucescens Diels in *Bot. Jahrb.* XXIX. 323 (1900).

Western Hupeh: Hsing-shan Hsien, margins of woods and thickets, alt. 1300–2300 m., May 25 and September 1907 (No. **164**, in part; climber 3–6 m., flowers orange-red, fruit scarlet); Fang Hsien, thickets, alt. 1600–2300 m., June 2, 1907 (No. **164**, in part; climber 3–6 m., flowers orange-red); same locality and altitude, October 1907 (No. **164**[a]; climber 2–3 m., fruit scarlet); without locality, May 1900 (Veitch Exped. No. 883); without locality, *A. Henry* (Nos. 5478, 5931, 6383). Szech'uan: without locality, *A. Henry* (No. 5725).

Exceedingly common in rocky places everywhere in western Hupeh, but not reported from western Szech'uan.

Schisandra pubescens Hemsley & Wilson in *Kew Bull. Misc. Inform.* 1906, 150.

Western Hupeh: Patung Hsien, thickets, alt. 1300–2000 m., September 1907 (No. **158**; climber 3 m., fruits orange and red); Changyang Hsien, thickets, June 1901 (Veitch Exped. No. 2234, type).

This distinct and handsome species is rather rare.

Schisandra sphenanthera Rehder & Wilson, n. sp.

Schizandra chinensis Diels in *Bot. Jahrb.* XXIX. 322 (non Baillon) (1900). — Finet & Gagnepain in *Bull. Soc. Bot. France,* LII. Mém. IV. 49 (1905); *Contrib. Fl. As. Or.* 11 49 (pro parte, non Baillon) (1907). — Pampanini in *Nuov. Giorn. Bot. Ital.* n. ser. XVII. 275 (1910).

Frutex scandens, 3–5-metralis; ramuli graciles, glabri, fusco-purpurei, lenticellati; gemmae ovoideae, obtusae, squamulis nitidulis conspersae, perulis paucis sparse ciliatis, inferioribus persistentibus parvis. Folia late obovata v. late ovalia, interdum fere orbicularia, rarius elliptica, acuminata, plerumque breviter subito acuminata, basi late cuneata, minute denticulata, rarius integra, 6–10 cm. longa et 3–7 cm. lata, supra atroviridia, subtus pallidiora, glabra; petioli supra sulcati, glabra, 2–3 cm. longa. Flores solitarii, axillares in axillis foliorum inferiorum et perularum, 1.5–2 cm. diam., extus virescentes, intus aurantiaci; pedunculi graciles, in floribus masculis 2–3.5 cm. longi, in femineis 3–6 cm. longi; sepala petalaque circiter 9, late ovalia v. oblonga 8–12 mm. longa et 3.7 mm. lata, obtusa; androecium ambitu obconicum apice fere applanatum v. convexum, circiter 5 mm. longum, staminibus 10–15, plus minusve inaequalibus et irregularibus, antheris cuneato-obovatis apice emarginatis v. truncatis rarius rotundatis basi in filamentum brevissimum attenuatis, loculis rectis; gynaeceum conicum, 5 mm. longum, carpellis ovoideis, punctulatis, stigmate applanato irregulari. Fructus 6–8 cm. longus, scarletinus; pedunculus 3.5–6 cm. longus; rhachis incrassata, carnosa, colorata; carpella subglobosa 10–12 mm. diam., breviter stipitata, plerumque breviter rostrata; semina fere reniformia, 3.5–4.5 lata, brunnea.

Western Hupeh: Patung Hsien, thickets, alt. 1300–1600 m., May and September 1907 (No. **313**, type); Hsing-shan Hsien, thickets, alt. 1300–2000 m., May and September 1907 (Nos. **2553**, **2554**, **245**); Fang Hsien, alt. 1600–2300 m., September 1907 (No. **263**, fruiting specimen only); Changyang Hsien, May 1900 (Veitch Exped. No. 675); Nanto, May 1900 (Veitch Exped. No. 779); without locality, April, June and July 1900 (Veitch Exped. Nos. 179ª, 1036, 1968); without locality, *A. Henry* (Nos. 3446, 3469, 4059). Kiangsi: Ku-

ling, thickets, alt. 1300 m., July 1907 (No. **1726**). Eastern Szech'uan: without locality, *A. Henry* (No. 5527ª). Western Szech'uan: Wa-shan, thickets, alt. 1300–2000 m., May and September 1908 (No. **866**, in part); near Mao-chou, thickets, alt. 1000–1600 m., May 21, 1908 (No. **866**, in part); Mupin, thickets, alt. 1300–1600 m., September 1908 (No. **866**, in part); Mupin, thickets, alt. 1000–1600 m., June 1908 (No. **869**); west and near Wên-ch'uan Hsien, alt. 1600 m., September 1908 (No. **869**ª); Hung-ya Hsien, thickets, alt. 1300 m., September 14, 1908 (No. **897**). Shensi: Tai-pei-shan, 1910, *W. Purdom;* "Monte di Kian-san," August 1909, *G. Giraldi.* Yunnan: Feng-chen-lin, south of Red river, forests, alt. 2300 m., *A. Henry* (No. 10697); Mengtze, woods, alt. 1800 m., *A. Henry* (No. 11211); Szemao, mountains, alt. 1600–1800 m., *A. Henry* (Nos. 12022, 12022ª, 12022ᵇ).

This is the common species of *Schisandra* in central and western China from the river-level up to 1600 m. alt. It exhibits considerable variation in the size and shape of the leaves, the size of the flowers and in the length of the pedicels. By Diels, Finet & Gagnepain and others it has been confused with *S. chinensis* Baillon, which is confined to Manchuria, Korea and Japan, and which is readily distinguished by its 5 stamens with very narrow connectives and practically sessile anthers.

Schisandra sphenanthera seems most nearly related to *S. elongata* Hooker f. & Thomson, which differs chiefly in its subglobose androecium, in its sessile, nearly equal and almost orbicular anthers with curved anther-cells and a very thick connective rounded at the apex, in its nearly orbicular sepals and petals, and in its rather narrower elliptic-ovate or ovate-oblong leaves. The only Chinese specimen of *S. elongata* we have seen is one collected by Mr. Dunn in Fokien (Herb. Bot. Gard. Hongkong, No. 2442); this agrees very well with the Himalayan specimens before us, which may or may not be identical with the typical Javanese plant of which we have seen no specimen. In common with other members of this family this species is colloquially known in Hupeh as "Wu-wei-tzu."

Schisandra sphenanthera, var. **pubinervis** Rehder & Wilson, n. var.

A typo recedit praecipere foliis subtus ad venas dense fulvo-villosis. Western Szech'uan: near Monkong Ting, thickets, alt. 2000–2300 m., June 19, 1908 (No. **2551**, type). Western Hupeh: without locality, *A. Henry* (No. 6447).

This variety is readily distinguished by the short, curled, rufous pubescence on the under side of the veins of the leaves. Henry's specimen is much less pubescent than the type and is in ripe fruit. This fruit is remarkable for its extreme length being about 20 cm. long on a peduncle 8 cm. long.

Schisandra sphenanthera, var. **lancifolia** Rehder & Wilson, n. var.

A typo recedit ramulis anguste suberoso-costatis pallidioribus lenticellatis, foliis lanceolatis longe acuminatis remote denticulatis 4–8 cm.

longis et 1.5–2.5 cm. latis, venis venulisque subtus conspicuis, floribus minoribus, pedicellis tenuioribus.

Western Szech'uan: Mupin, thickets, alt. 1300–1800 m., June 1908 (No. **2552**, type; climber, 2–4 m., flowers orange-yellow); near Tachien-lu, thickets, alt. 1300–1600 m., October 1908 (Nos. **1268**, **1268**[a]; climber, 2–3 m., fruit scarlet); without precise locality, July 1903 (Veitch Exped. No. 3134).

This is a very distinct variety, easily recognized by its narrowly lanceolate leaves by the smaller flowers on slender pedicels, and by the narrow, wavy ribs of the branches, formed by a corky excrescence; in Nos. 1268[a] and 3134 the branches are dark purple-brown and like those of the type only slightly or not at all ribbed; it is common in the warm river valleys in western Szech'uan.

Schisandra propinqua Hooker f. & Thomson in Hooker f., *Fl. Brit. Ind.* I. 45 (1872).—King in *Ann. Bot. Gard. Calcutta*, III. 220 (1891).—Finet & Gagnepain in *Bull. Soc. Bot. France*, LII. Mém. IV. 51 (1905); *Contrib. Fl. As. Or.* II. 51 (1907).

Kadsura propinqua Wallich, *Fl. Tent. Nepal.* II. t. 15 (1824).
Sphaerostema propinquum Blume, *Fl. Jav.* III. Fam. XII. 16 (*Schizandreae*) (1828). — Hooker f. & Thomson, *Fl. Ind.* I. 85 (1855).

Yunnan: Mengtze, rocks, 1600 m., *A. Henry* (No. 10719); Szemao, mountains to south and west, alt. 1500–1600 m., *A. Henry* (Nos. 11893, 12192).

No. 10719 in its foliage and smaller flowers shows an approach to the variety *sinensis* from central and western China.

Schisandra propinqua, var. **sinensis** Oliver in *Hooker's Icon.* XVIII. t. 1715 (1887). — Diels in *Bot. Jahrb.* XXIX. 322 (1900). — Pampanini in *Nuov. Giorn. Bot. Ital.* n. ser. XVII. 275 (1910).

Schizandra propinqua, var. *linearis* Finet & Gagnepain in *Bull. Soc. Bot. France*, LII. Mém. IV. 51 (1905); *Contrib. Fl. As. Or.* II. 51 (1907).

Western Hupeh: Changyang Hsien, on rocks, alt. 600–1000 m., July and November, 1907 (No. **485**; climber, 1.5–2 m., flowers yellowish, fruit scarlet, leaves marbled with white); without locality, August 1900 (Veitch Exped. 1304); Ichang and immediate neighborhood, *A. Henry* (Nos. 1544, 3699, 3961, 6219). Western Szech'uan: Mupin, rocky places, alt. 1300–1600 m., October 1908 (No. **1070**; climber, 2–2.3 m., fruit scarlet); Wa-shan, roadsides, alt. 1300 m., November 1908 (No. 1268[b]; climber 2 m., fruit scarlet).

The extreme forms of this variety with linear-lanceolate leaves look very different from the type, but intermediate forms are common.

This variety is very common in rocky places up to 1000 m. alt. in central and western China where it is known as the "Hsueh-hu-têng." The marbled leaves and scarlet fruit render this climber particularly attractive.

ILLICIUM L.

Illicium Henryi Diels in *Bot. Jahrb.* XXIX. 323 (1900). — Finet & Gagnepain in *Bull. Soc. Bot. France*, LII. Mém. IV. 28 (1905); *Contrib. Fl. As. Or.* II. 28 (1907). — Pampanini in *Nuov. Giorn. Bot. Ital.* n. ser. XVII. 274 (1910).

Illicium Silvestrii Pavolini in *Nuov. Giorn. Bot. Ital.* n. ser. XV. 403 (1908). — in Fedde, *Rep. Nov. Sp.* IX. 317 (1911).

Western Hupeh: Hsing-shan Hsien, cliffs, alt. 300–600 m., May 7, 1907 (No. **3086**; bush 0.5–2 m. tall, flowers reddish-crimson); same locality, June 1910 (No. **3086**[a]); same locality, May 1907 (No. **3087**, in part; bush 1–2 m., flowers dark red); Ichang, cliffs in glens, 300–600 m., May 1907 (No. **3087**, in part; bush 1–2 m., flowers dark red); without locality, April and May 1900 (Veitch Exped. Nos. 431, 603, 682); Ichang and immediate neighborhood, *A. Henry* (Nos. 3848, 3388, type). Western Szech'uan: Mupin, thickets, alt. 1000–1300 m., June 1908 (No. **3085**; bush 1.5–2 m., flowers dark crimson). Fokien: without locality, Dunn's Exped., 1905 (Herb. Bot. Gard. Hongkong, No. 2440).

This shrub is common on the cliffs in the glens near Ichang, where it is known as the "Pa-kou-wei-shu." It is very floriferous and a very handsome shrub. The specimens from Mupin and Fokien differ in their 10–12 carpels, but this is hardly sufficient to warrant their separation as species or even as a variety.

TETRACENTRON Oliv.

Tetracentron sinense Oliver in *Hooker's Icon.* XIX. t. 1892 (1889). — Diels in *Bot. Jahrb.* XXIX. 323 (1900). — Finet & Gagnepain in *Bull. Soc. Bot. France*, LII. Mém. IV. 26 (1905); *Contrib. Fl. As. Or.* II. 26 (1907). — Bean in *Kew Bull. Misc. Inform.* 1909, 356, fig.

Western Hupeh: Fang Hsien, woods, alt. 1600–2300 m., November 1907 (No. **659**; tree 13–26 m. tall, girth 2–5 m.); without locality, June and October 1901 (Veitch Exped. No. 2156); without locality,

A. Henry (No. 6690). Western Szech'uan: forests, alt. 1600–3000 m., common, June and October 1908 (No. **659**[a], in part); Mupin, woods, alt. 1600–3000 m., June and October 1908 (No. **659**[a], in part; tree 6–33 m., tall); Wa-shan, woodlands, alt. 2300–3000 m., July and October 1908 (No. **659**, in part; tree 6–23 m. tall, girth 1–6 m.); west of Kuan Hsien, woodlands, Pan-lan-shan, alt. 2000–3000 m., October 1910 (No. **4328**, in part; tree 20–26 m. tall, girth 2–5 m.); Chien-chi Hsien, summit of Fei-yueh-ling, alt. 3000 m., October 1910 (No. **4328**, in part; tree 20 m. tall, girth 4 m.); Mt. Omei, July 1904 (Veitch Exped. No. 4721). Shensi: Tai-pei-shan, 1910, *W. Purdom* (Nos. 669, 670). Yunnan: south of Red River from Manmei, alt. 2300 m., *A. Henry* (No. 9744); Feng-chen-lin mountain, forests, alt. 2000–2300 m., *A. Henry* (No. 9744[a]).

In the forests of central and western China this handsome tree is only surpassed in size by *Cercidiphyllum*. It is very abundant in western Szech'uan, but is less common in Hupeh. It selects moist slopes and bottom-lands in the neighborhood of mountain streams and makes a much-branched, rather flat-headed tree, 16–30 m. tall, with a girth of 4–6 m. The bark is nearly smooth, persistent, pale gray or rufous-gray according to situation; the wood is white, brittle and of little value. A picture of this tree will be found under No. 121 of the collection of Wilson's photographs and also in his *Vegetation of Western China*, No. 484.

CALYCANTHACEAE.

Determined by Alfred Rehder and E. H. Wilson.

MERATIA Lois.[1]

Meratia praecox Rehder & Wilson, n. comb.

Calycanthus praecox Linnaeus, *Sp.* ed. 2, 718 (1762). — Curtis in *Bot. Mag.* XIII. t. 466 (1799).
Meratia fragrans Loiseleur, *Herb. Amat.* III. 173 t. (1818).
Chimonanthus fragrans Lindley in *Bot. Reg.* VI. t. 451 (1820). — Franchet & Savatier, *Enum. Pl. Jap.* I. 15 (1875). — Hemsley in *Jour. Linn. Soc.* XXIII. 22 (1886). — Diels in *Bot. Jahrb.* XXIX. 345 (1900). — Finet & Gagnepain in *Bull. Soc. Bot. France,* LII. Mém. IV. 22 (1907); *Contrib. Fl. As. Or.* II. 22 (1907). — Dunn & Tutcher in *Kew Bull. Misc. Inform.* Add. ser. X. 27 (*Fl. Kwantung & Hongkong*) (1912).
Chimonanthus praecox Link, *Enum. Pl. Hort. Berol.* II. 66 (1822). — Schneider, *Ill. Handb. Laubholzk.* I. 346, fig. 221 a–d (1905). — Makino in *Tokyo Bot. Mag.* XXIV. 300 (1910).
Butneria praecox Schneider in *Dendr. Winterstud.* 241 (1903).

Western Hupeh: Ichang, cliffs in glens and gorges, alt. 30–300 m., common, June 1907 (fruits), January 1908 (flowers) (No. 36; bush

[1] **Meratia** Loiseleur, *Herb. Amat.* III. 173, t. (1818). — Nees von Esenbeck in *Act. Nov. Leop.-Carol. Acad.* XI. 107, t. 10 (1823).
Chimonanthus Lindley in *Bot. Reg.* V. sub t. 404 (1819). — De Candolle *Prodr.* III. 2 (1828). — G. Don, *Gen. Syst.* II. 652 (1832). — Spach, *Hist. Vég.* IV. 284 (1835). — Endlicher, *Gen.* 1239 (1840). — Bentham & Hooker, *Gen.* I. 16 (1862).
Calycanthus, sect. *Chimonanthus* Prantl in Engler and Prantl, *Nat. Pflanzenfam.* III. Abt. II. 94 (1888).
Though the generic name *Meratia* was published with a full generic and specific description accompanied by a plate more than a year before *Chimonanthus* of Lindley, it has been generally overlooked and is not even quoted as a synonym in many taxonomic works. At first sight the priority of *Meratia* is not apparent, as the volume in which it is published is dated 1819 on the title-page, as is the case in the volume which contains the description of *Chimonanthus*. Loiseleur's *Herbier général de l'amateur*, however, was issued in 96 parts (livraisons), each containing 6 plates with descriptions, and part XXIX. which included the description of Meratia under No. 173, was issued in or before July 1818 according to the *Bibliographie de la France*, année 1818, p. 437 (in the monthly number of July 25, 1818), while *Chimonanthus* was not published before October 1819, which is the date given on the plate 404 itself. With this evidence we are obliged to take up *Meratia* as the oldest name for the genus based on *Calycanthus praecox* Linnaeus.

1–2 m. tall, flowers yellow, fragrant); same locality 1900 (Veitch Exped. No. 1753 as to fruits); Ichang and immediate neighborhood, *A. Henry* (No. 3565). Chili: Tang-shan, Hot springs, October 1905, *F. N. Meyer* (No. 216).

This shrub, the "La-mei-hwa" of the Chinese, is abundant on the cliffs in the glens and gorges around Ichang and westwards into Szech'uan. This is the real home of this plant which is only cultivated in Japan as Makino and others have pointed out. Under the vernacular name of Obai Robai it is well figured in Kaempfer's *Amoen. Exot.* 878, t. 879 (1712).

Meratia praecox, var. **grandiflora** Rehder & Wilson, n. comb.

Chimonanthus fragrans, var. *grandiflora* Lindley in *Bot. Reg.* VI. t. 451 (1820).
Chimonanthus praecox, var. *grandiflorus* Makino in *Tokyo Bot. Mag.* XXIV. 301 (1910).

Western Hupeh: Ichang, cultivated, January 1908 (No. 36[a]); same locality, also cultivated, December 1900 (Veitch Exped. No. 1753; flowers only).

This variety has much larger, brighter colored flowers than the type and is a favorite shrub in the gardens of wealthy Chinese. It is propagated by layering and by grafting on the wild type.

A second species of this genus occurs in central China:

Meratia nitens Rehder & Wilson, n. comb.

Chimonanthus nitens Oliver in *Hooker's Icon.* X. t. 1600 (1887).
Calycanthus nitens Rehder in Bailey, *Cycl. Am. Hort.* I. 223 (1900).

HAMAMELIDACEAE.

Determined by Alfred Rehder and E. H. Wilson.

LIQUIDAMBAR L.

Liquidambar formosana Hance in *Ann. Sci. Nat.* sér. 5, V. 215 (1866); in *Jour. Bot.* V. 110 (1867); VIII. 274 (1870). — Oliver in *Hooker's Icon.* XI. 14, t. 1020 (1867–1871). — Hemsley in *Jour. Linn. Soc.* XXIII. 291 (1887). — Diels in *Bot. Jahrb.* XXIX. 379 (1900). — Pampanini in *Nuov. Giorn. Bot. Ital.* n. ser. XVII. 288 (1910). — Dunn & Tutcher in *Kew Bull. Misc. Inform.* add. ser. X. 101 (1912).

Liquidambar acerifolia Maximowicz in *Bull. Acad. Sci. St. Pétersbourg*, X. 486 (1866).
Liquidambar sp. Hemsley in *Jour. Bot.* XIV. 207 (1876).
Liquidambar Maximowiczii Miquel in *Ann. Mus. Lugd.-Bat.* III. 200 (1877). — Franchet in *Nouv. Arch. Mus. Paris*, sér. 2, VII. 167 (1884–1885).
Liquidambar formosana, var. Hemsley in *Jour. Linn. Soc.* XXIII. 291 (1887).

Kiangsi: foot-hills around Kiukiang, alt. 300 m., August 1907 (No. **1628**; tree, 16–20 m. tall, bark grey, fissured); Kuling thickets, alt. 1300 m., July 1907 (No. **1629**; small tree, 5 m. tall). Western Hupeh: north and south of Ichang, woodlands and open country, alt. 30–1000 m., April and November 1907 (No. **513**, tree 16–40 m. tall, girth 2–4 m., bark on young trees smooth, greyish-white becoming fissured and dark with age); without locality, April and November 1900 (Veitch Exped. No. 218); without locality, *A. Henry* (Nos. 5218, 1630). Eastern Szech'uan: south Wushan, *A. Henry* (No. 5218[b]). Chekiang: vicinity of Ningpo, 1908, *D. Macgregor*. Kwangtung: North River, September 1866, *Hance* (No. 11209 in part); West River, Sai-chu-shan, February 1869, *Sampson* (Herb. Hance No. 11209, in part). Formosa: 1864, *R. Oldham* (No. 881); Tamsiu, *Morse* ex *A. Henry* (No. 425); Taitum, May 6, 1903, *U. Faurie* (No. 45). Cultivated in Japan.

This is one of the most widely distributed trees in China, being found in all the warm-temperate parts from Formosa in the east to the confines of Thibet in the west and Kwangtung in the south. It is particularly abundant in western Hupeh up to 1000 m. alt. and this region is probably the center of its greatest distribution.

In western Szech'uan it is rather rare, but occurs around Mt. Omei and in the prefecture of Yachou Fu. It is a handsome tree 20–40 m. tall, with straight trunk, a much-branched head, and frequently buttressed roots. The leaves turn to a warm chestnut-brown or red in autumn and are retained late into the winter. It is known colloquially in Hupeh as the *Feng Hsiang* tree.

In juvenile plants, either seedlings or shoots rising from the stumps of felled trees, the stems and petioles are villose, often densely so; the leaves are palmately 5-lobed with a broadly cordate base and villose below; the lobes are somewhat narrowed to the base, acute, rarely shortly acuminate. Adventitious branches which develop on old trees after severe pruning also have these same hairy stems and leaves. In adult trees the branchlets and petioles are glabrous; the leaves smaller, 3-lobed, with a cordate or more rarely truncate base and are glabrescent below; the lobes are divaricate, widening to the base and long acuminate.

Hance (*Jour. Bot.* V. 110, 1867) has drawn attention to this remarkable difference between the leaves and shoots in juvenile and adult trees of this species and we can abundantly confirm his observations. In Kiangsi province and other places the timber is used for tea-chests, but we never heard that it was used for this purpose in western Hupeh.

Pictures of this tree will be found under Nos. 38, 497, 480, 481, 532, 045, 0182 of Wilson's photographs and also in his *Vegetation of Western China*, Nos. 295–299.

Liquidambar formosana, var. **monticola** Rehder & Wilson, n. var.

A typo recedit ramulis foliisque semper glabris foliis subtus glaucescentibus basi truncatis rarius subcordatis, in plantis juvenilibus tantum plerumque cordatis. Arbor 16–25 m. altus trunco circuitu 2–3 m.

Western Hupeh: Hsing-shan Hsien, woodlands, alt. 600–1200 m., rare, May and November 1907 (No. **795**, type). Eastern Szech'uan: Taning Hsien, woodlands, alt. 1600 m., July 1910 (No. **795**[a]).

This distinct variety is common in moist woods in north-eastern Szech'uan, more especially in Taning Hsien, but is rare in western Hupeh. We at first took it for a distinct species, but on closer examination we can find no essential differences in the flower or fruit. The glabrous character is fixed and constant as seedlings raised in the Arnold Arboretum as well as field observations prove. Seedling plants of the type and this variety growing side by side look remarkably different, but in the adult trees the distinctions are much less apparent and in the herbarium it is difficult to distinguish between them. The variety scarcely grows to as large a size as the type, and it is a much hardier tree.

A picture of this tree will be found under No. 0181 of Wilson's photographs.[1]

[1] There may be added the description of a new species from Yunnan of the closely allied genus *Altingia* Noronha.

Altingia yunnanensis Rehder & Wilson, n. sp.

Arbor 3–6-metralis, sed altitudinem ingentem trunco 4 m. diam. attingere dicitur; ramuli hornotini glaberrimi, annotini pallide brunnei. Folia in apice ramulorum fructiferorum congesta, subcoriacea, elliptico-ovata v. elliptico-

DISTYLIUM Sieb. & Zucc.

Distylium chinense Diels in *Bot. Jahrb.* XXIX. 380 (1900). — Hemsley in *Hooker's Icon.* XXIX. t. 2835 (1907). — Fedde, *Rep. Nov. Sp.* V. 340 (1908).

Distylium racemosum, var. *chinense* Franchet apud Hemsley in *Jour. Linn. Soc.* XXIII. 290 (1887).

Western Hupeh: Ichang, on rocks, sides of streams, alt. 30–300 m., March 15, 1907 (No. **2961**; bush 0.5–1.5 m. tall); vicinity of Ichang, sandy and rocky places, alt. 30–300 m., April 1907 (No. **3537**; fluviatile shrub, 0.5–1.5 m. tall, flowers red); without locality, April 1900 (Veitch Exped. No. 115); Ichang and immediate neighbourhood, *A. Henry* (Nos. 3314, 3826, 4280, 7805).

This is one of the most common river-bank shrubs in western Hupeh and eastern Szech'uan, but does not ascend above 600 m. alt. In sand and shingle and on rocks it forms a dense scrub, often covering considerable stretches of the river banks. The leaves vary somewhat in size and may be quite entire or rather deeply toothed in the upper half; the deep red or crimson anthers are conspicuous when the plant is in flower. Pictures of this tree, called Shih-tou-koutzu by the Chinese, will be found under Nos. 8 and 491 of Wilson's photographs and also in his *Vegetation of Western China*, Nos. 206 and 207.

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oblonga, acuminata, basi late cuncata, rarius rotundata, 9–13 cm. longa et 5–6 cm. lata, margine leviter revoluta, remote serrulata dentibus fere ad mucronem brunneum reductis, utrinque glabra, supra obscure viridia, subtus paullo pallidiora, utrinsecus nervis 5–8 adscendentibus anastomosantibus ut costa media subtus elevatis; petioli validi, 1.5–2 cm. longi; stipulae subulatae, tenues, caducae, 2–5 mm. longae. Capitula fructifera axillaria, subterminalia, solitaria, pedunculo glabro 5–6.5 cm. longo sustenta, globosa, 2.5–3 cm. diam.; capsulae ligneae, extus fulvo-tomentosulae, intus atrobrunneae, 5–8 mm. longae, stylo persistenti 2–4 mm. longo coronatae.

Yunnan: Mengtze, forests to the south-east, alt. 2000 m., *A. Henry* (No. 10395, type); same locality, alt. 1600 m., *A. Henry* (No. 11082).

Allied to *A. excelsa* Noronha which has pubescent young shoots, more membranous, rather differently shaped, more deeply serrated leaves, longer petioles and smaller fruits with much shorter persistent styles, being in fact nearly smooth.

No. 11082 which belongs to the same species is "said to be an enormous tree 12 ft. in diameter, flowers found on the ground." This specimen consists of branches having young leaves and detached male inflorescences. The leaves and shoots are perfectly glabrous; the serrations more prominent than in the older leaves; the inflorescences are narrowly paniculate, 6–8 cm. long, the rhachis covered with short yellowish crisped pubescence.

CORYLOPSIS Sieb. & Zucc.

Corylopsis sinensis Hemsley in *Gard. Chron.* ser. 3, XXXIX. 18, fig. 12 (1906); in *Hooker's Icon.* XXIX. t. 2820, fig. 17–20 (1906). — Fedde, *Rep. Nov. Sp.* IV. 363 (1907). — Schneider, *Ill. Handb. Laubholzk.* II. 955, fig. 587 a, 588 a–c (1912).

Corylopsis spicata Hemsley in *Jour. Linn. Soc.* XXIII. 290 (non Siebold & Zuccarini) (1887).

Kiangsi: Kuling, thickets, alt. 1300 m., abundant, July 29, 1907 (No. **1556**; bush 2–4 m. tall). Western Hupeh: Changyang Hsien, woodlands, alt. 1300–2000 m., April 1907 (No. **173**[a]; bush 2–2.5 m. tall, flowers primrose-yellow, fragrant); same locality, alt. 2000 m., April and October 1900 (Veitch Exped. No. 65 and seed No. 448); without locality, *A. Henry* (No. 5854). Eastern Szech'uan: Nanch'uan, "Chanchia-shan," July 24, 1891, *A. von Rosthorn* (No. 32).

This species is very abundant around Kuling and fairly common in western Hupeh. The leaf characters are variable and so is the degree of hairiness of the shoots. Stipitate glands are usually to be found scattered through the villose tomentum on the petioles, young shoots, and occasionally on the under surface of the leaves, but vary greatly in number and are often lacking. The fruits are nearly globose, about 8 mm. in diameter, sessile or subsessile, crowded into a short spicate raceme, villose and at the summit glabrescent. The seeds, when ripe, are jet black, as they are in every other species of the genus.

Corylopsis sinensis, var. **glandulifera** Rehder & Wilson, n. comb.

Corylopsis glandulifera Hemsley in *Hooker's Icon.* XXIX. t. 2818 (1906). — Fedde, *Rep. Nov. Sp.* V. 266 (1908). — Schneider, *Ill. Handb. Laubholzk.* II. 957, fig. 588 m–o. (1912).

Kiangsi: Kuling, thickets, alt. 1300 m., July 29, 1907 (No. **1555**; bush 2–2.5 m. tall). Eastern Szech'uan: Nanch'uan, "Lao-titzu," September 19, 1891, *A. von Rosthorn* (No. 966).

The glandular character on which Hemsley relied in establishing his species cannot be depended on, as it is also found in the typical *C. sinensis* Hemsley. A comparison of Hemsley's figures shows the floral structure to be identical in his two species. The glabrous character of the ovary and calyx seems to us the only distinguishing feature of var. *glandulifera*, and the only one by which we can separate it from the type. The fruit is similar in size and shape to that of the type, but glabrous and usually subsessile.

Corylopsis sinensis, var. **calvescens** Rehder & Wilson, n. var.

A typo praecipue differt ramulis foliisque glabrescentibus.

Frutex 1.5–3 m. altus, ramulis hornotinis glabris v. fere glabris. Folia late ovata v. oblongo-ovata, acuta v. acuminata, basi cordata

v. rhomboideo-obovata, breviter subito acuminata, basi truncata, saepe obliqua dentata dentibus aristatis, supra glabra, subtus subglaucescentia et venis sericeo-pilosis exceptis glabra; petioli sericei et saepe stipitato-glandulosi. Capsulae dense villosae et quam in typo paullo majores.

Kiangsi: Kuling, thickets, alt. 1300 m., common, July 29, 1907 (No. **1554**).

The glabrescent character of the leaves and shoots readily distinguish this variety.

Corylopsis Veitchiana Bean in *Bot. Mag.* CXXXVI. t. 8349 (1910). — Beckett in *Garden* LXXVI. 184 (1912). — Schneider, *Ill. Handb. Laubholzk.* II. 955, fig. 587 b, 588 d–g (1912).

Western Hupeh: Changyang Hsien, woodlands, alt. 1300–2000 m., April and June 1907 (No. **173**, in part; bush 2–2.5 m. tall, flowers primrose-yellow, fragrant); Fang Hsien, woodlands, alt. 1300–2000 m. August 1907 (No. **173**, in part; bush 1–2 m. tall).

This pretty species is fairly common in western Hupeh in thickets and margins of woods. The beauty of its fragrant flowers is heightened by the red anthers.

The fruit, which has not been described before, is sessile and crowded, 7–9 mm. long, 8–10 mm. wide, densely villose, becoming glabrescent when ripe.

Corylopsis Willmottiae Rehder & Wilson, n. sp.

Frutex 2–4-metralis ramis gracilibus; ramuli hornotini glabri, annotini pallide brunnei, minute lenticellati. Folia ovalia v. obovata, interdum late ovata, subito breviter acuminata, basi cordata v. truncata, sinuato-denticulata dentibus parvis ad mucronem fere reductis, 4–10 cm. longa et 2–8 cm. lata, supra atroviridia, nitentia, glabra, subtus pallidiora, leviter glaucescentia, subtus ad nervos initio sericeo-pilosa ceterum glabra, maturitate glabra v. fere glabra, nervis utrinsecus 7–10 subtus elevatis; petioli 6–25 mm., plerumque 10–15 mm. longi, glabri v. glabrescentes, interdum parce stipitato-glandulosi; stipulae innovationum oblongae v. ovato-oblongae, 1–2.5 cm. longae, acutae, ciliolatae, extus glabrae, intus sericeae, saepe purpurascentes. Racemi 6–7 cm. longi; pedunculus 1.5–2 cm. longus, ut rhachis villosus; calyx glaber, tubo brevi late turbinato sepalis late triangularibus v. ovalibus circiter 1 mm. longis subaequilongo; nectaria bifida, sepalis paullo breviora; petala staminaque non visa; ovarium glabrum semi-inferum, stylo circiter 4 mm. longo, stigmate recurvo. Capsula 6–9 mm. diam., semi-infera, glabra, pallide brunnea; semina ovoidea, circiter 4 mm. longa, obtusa, nigra, hilo albo conspicuo notata.

Western Szech'uan: south-east of Tachien-lu, thickets, alt. 2000–2300 m., June and October 1908 (No. **1316**, type); west and near Wên-ch'uan Hsien, thickets, alt. 2000–2300 m., July 1908 (No. **2275**); south-east of Tachien-lu, thickets, alt. 2300–2600 m., October 1910 (No. **4406**); Mupin, woodlands, alt. 2000–2500 m., September 1910 (No. **4224**).

This species is distinguished by its glabrous calyx and ovary and by the leaves being hairy on the veins only. In this respect it resembles *C. Henryi* Hemsley and *C. multiflora* Hance, but the first differs from it in its perfectly free, elongated ovary and ovate-oblong sepals, and the second in its entire nectaries and indistinctly toothed calyx. It seems more closely related to *C. sinensis* Hemsley, which differs, however, in the pubescent cuneate leaves and in the usually pubescent calyx and ovary, and to *C. Veitchiana* Bean which is easily distinguished by the densely pubescent calyx and ovary and larger fruit. Our material consists of old flowers from which the petals and stamens have fallen, and of fruiting specimens only. No. 4224 differs slightly in having most of the leaves nearly orbicular and the apex of the shoot and the young leaves on the under surface hairy all over; the older leaves, however, are glabrous. Young seedlings sometimes exhibit this same phenomenon as is shown by specimens before us, raised from No. 1316.

This new species is very floriferous and quite common in the margins of woods and thickets throughout western Szech'uan. We have pleasure in naming it for Miss Ellen Willmott, who exhibited a plant of it before the Royal Horticultural Society of London on March 5, 1912, under the erroneous name of *C. multiflora*. The flowers were described as bright yellow and very fragrant. A photograph of this plant is reproduced under the same name in *Gardeners' Magazine* LV. 191.

Corylopsis platypetala Rehder & Wilson, n. sp.

Frutex 1–2.5 m. altus ramis gracilibus; ramuli hornotini glabri pilis sparsis glanduliferis exceptis, annotini pallide flavo-cinerei, minute lenticellati, vetustiores pallide brunneo-grisei; gemmae glabrae. Folia decidua, ovata v. late ovata, basi cordata v. subcordata, breviter acuminata, sinuato-denticulata dentibus fere ad mucronem reductis, 4.5–10 cm. longa et 4–7 cm. lata, utrinque initio sparse sericeo-pilosa, mox glabra, supra obscure viridia, subtus glaucescentia, nervis utrinsecus 6–10 supra impressis subtus elevatis; petioli sparse stipitato-glandulosi, interdum glabri; stipulae oblongae v. oblongo-spatulatae, 2–3 cm. longae, acutae, extus glabrae, intus sericeo-pilosae. Flores pallide flavi, fragrantes, in racemis 8–20-floris; pedunculus glaber v. fere glaber, 1.5–2 cm. longus; rhachis laxe pilosa, pedunculo subaequilonga v. paullo longior; bracteae oblongae, concavae, 5 mm. longae, villosae; calyx glaber, tubo late turbinato circiter 1 mm. longo, lobis ovalibus obtusis tubo vix longioribus flavescentibus; petala dolabriformia, flava, lamina reniformi 3–4 mm. lata latiore quam longa, breviter unguiculata; nectaria plerumque simplicia, sepalis breviora;

stamina petalis multo breviora, incurva, filamentis apicem versus dilatatis glabris, antheris globosis; ovarium glabrum; styli recti, staminibus breviores, glabri, stigmate obliquo paullo incrassato. Capsula glabra, 7–9 mm. longa et 6–8 mm. diam.; semina ovalia, leviter compressa, 4–5 mm. longa, obtusa, nigra, hilo albido.

Western Hupeh: Hsing-shan Hsien, margins of woods, alt. 1600–2300 m., May, June and August 1907 (No. 184).

From all other species *C. platypetala* is easily distinguished by the very broad hatchet-shaped petals. It is perhaps nearest to *C. himalayana* Griffith, which has, however, differently shaped petals, a villose ovary and curved divergent styles; the leaves, too, of the two species are very different.

This new species is a common shrub in the thickets and margins of woods throughout north-western Hupeh.

Corylopsis platypetala, var. **levis** Rehder & Wilson, n. var.

A typo recedit glandularum defectu, ramulis annotinis brunneis v. fusco-brunneis, capsulis paullo minoribus leviter glaucescentibus. Flores ignoti.

Western Szech'uan: west and near Wên-ch'uan Hsien, thickets, alt. 1300–2500 m., July and October 1908 (No. **1020**, type); near Mao-chou, Chiu-ting-shan, thickets, alt. 1600 m., May 22, 1908 (No. **2272**); Ching-chi Hsien, Ta-hsiang-ling, alt. 1300–2600 m., May 1908 (**2273**); Mupin, thickets, 2000–2600 m., June 1908 (No. **2274**).

In the absence of flowers the characters which separate this variety from the type are comparatively slight, but it occupies a different geographical range and considering the fact that all species and varieties of this genus are rather local we have thought it advisable to separate the Szech'uan plant from the type which has been collected only in Hupeh. This plant is in cultivation, and when it flowers its taxonomic rank can be more accurately determined. None of the Herbarium specimens have any trace of glands, but the seedlings have a few stipitate glands on the young shoots and petioles; glands probably occur more or less frequently on all the species.

FORTUNEARIA Rehd. & Wils.

Fortunearia Rehder & Wilson, n. gen.

Calyx tubo turbinato brevi, lobis 5 triangularibus brevibus deciduis; petala 5, subulata, sepalis subaequilonga; stamina 5, filamentis brevissimis, antheris basifixis fere sessilibus ovoideis valvis 2 lateralibus longitudinaliter dehiscentibus; ovarium semi-inferum, biloculare, ovulis in quoque loculo solitariis pendulis; styli 2, liberi, elongati, filiformes, revoluti, stigmatibus simplicibus. Capsula lignescens, semi-supera, bivalvis, ultra medium loculicide dehiscens valvis apice bifidis; endo-

carpium corneum, ab exocarpio solutum; semina oblongo-ovoidea, testa ossea, atrobrunnea, nitida, basi hilo albido transverso exsculpto notata; albumen tenue; embryo rectus, cotyledonibus foliaceis amplis margine sigmoideo-recurvis basi subcordatis, radicula brevi ad hilum spectante. — Frutex stellato-pubescens foliis deciduis serratis petiolatis, stipulis parvis deciduis, floribus coetaneis in racemos terminales dispositis breviter pedicellatis parvis bracteis bracteolisque parvis caducis institutis, capsula pedicello incrassato insidente, ovoidea, apice basibus stylorum persistentibus coronata, lenticellata.

Genus novum *Sinowilsoniae* et *Corylopsi* affine: a priori cui habitu et foliis simillimum praecipue calycis tubo turbinato quam ovarium breviori, petalis subulatis, cotyledonibus amplioribus margine recurvis bene distincta; a posteriori cui florum structura arctius affine, defectu disci, petalis minutis, antheris sessilibus, capsula apice attenuata nec truncata, lenticellata, cotyledonibus amplis margine recurvis, foliorum indumento, forma, nervatione valde differt.

Species unica Chinae centralis incola.

This new Chinese genus is named for the late Robert Fortune whose travels in China and Japan, from 1843–1861 resulted in important additions to our knowledge of the far eastern, and particularly the Chinese flora and enriched our garden with a large number of highly ornamental plants. Lindley in 1846 (in *Jour. Hort. Soc.* I. 150) named a Chinese plant *Fortunaea chinensis*, but the same plant had been previously described by Siebold & Zuccarini as *Platycarya strobilacea*.

Fortunearia closely resembles in foliage and habit *Sinowilsonia*, which differs chiefly in its tubular calyx-tube several times longer than the ovary and enclosing it, by the absence of petals, the larger spatulate sepals, sessile flowers and the flat cotyledons. In the structure of its flowers it seems most closely related to *Corylopsis*, which ,however, is easily distinguished by the presence of a disk, large petals, stamens with long filaments, truncate, not lenticellate capsules, flat cotyledons and by the nervation, shape and pubescence of the leaves.

In some specimens collected in autumn we find terminal on short branchlets a few peculiar naked oblong aments, only 5–6 mm. long and resembling short staminate catkins of *Corylus*. The flowers of these aments contain in this stage well-developed anthers and in the centre a rudimentary ovary consisting of a two-pointed body only about one-third as long as the stamens; whether this rudimentary ovary will develop into a normal pistil the following spring or will remain rudimentary, cannot now be determined. In the latter case *Fortunearia* would turn out to be an andromonœcious genus like *Sinowilsonia*, but neither in this genus nor in *Distylium* have similar naked autumnal aments been described and we have searched in vain numerous specimens of these two genera for such aments. For the solution of the question regarding the character of these aments we shall probably have to wait until the plants now growing in the Arnold Arboretum and in other gardens flower.

Fortunearia sinensis Rehder & Wilson, n. sp.

Frutex 1.50–2 m. altus, ramis erectis; ramuli hornotini, initio sparse

stellato-pilosi, mox glabrescentes, annotini et vetustiores pallide cinereo-brunnei, vix lenticellati; gemmae breviter stipitatae, stellato-tomentosae, eperulatae. Folia membranacea, obovata v. obovato-oblonga, breviter acuminata, basi rotundata v. truncata, inaequaliter sinuato-denticulata dentibus saepe mucroniformibus, 7–14 cm. longa et 3.5–8.5 cm. lata, supra laete viridia, initio sparsissime fasciculato-pilosa, mox glabrescentia costa media densius fasciculato-pilosa excepta, subtus pallidiora, ad nervos dense fasciculato-pilosa ceterum fere glabra, nervis utrinsecus 6–10 subtus elevatis trabeculis elevatis conjunctis; petioli dense fasciculato-tomentosi, 4–8 mm. longi. Racemi in ramis 2–3-foliatis terminales, erecti 4–6 cm. longi, pedunculo 1–1.5 cm. longo fasciculato-piloso insidentes; rhachis laxe stellato-tomentosa; pedicelli 1–2 mm. longi, sparse stellato-pilosi v. glabri, bracteis lanceolatis pedicellum vix aequantibus sparsi stellato-pubescentes cito caducis suffulti et bracteolis 2 similibus sed minoribus cito caducis instituti; calycis tubus turbinatus circiter 1 mm. longus, glaber, lobi oblongo-ovati, obtusi, apice plerumque sparse stellato-pilosi, vix 1.5 mm. longi, decidui; petala subulata sepalis paullo breviora; stamina sepalis subaequilonga, antheris ovoideis fere sessilibus; styli revoluti, stamina superantes. Capsula ovoidea, basibus stylorum erectis coronata, 1.5 cm. longa, obscure brunnea, lenticellata, paullo infra medium vestigiis calycis circumdata; semina oblongo-ovoidea, circiter 1 cm. longa, apicem versus attenuata, nitida, atrobrunnea, basi hilo transverso albido exsculpto notata.

Western Hupeh: Fang Hsien, margin of oak woods, rare, alt. 600–1500 m., May 25 and November 1907 (No. 565).

SINOWILSONIA Hemsl.

Sinowilsonia Henryi Hemsley in *Hooker's Icon.* XXIX. t. 2817 (1906). — Fedde, *Rep. Nov. Sp.* V. 265 (1908). — Bean in *Kew Bull. Misc. Inform.* XXII. 355 (1909). — Pampanini in *Nuov. Giorn. Bot. Ital.* n. ser. XVIII. 120 (1911). — Schneider, *Ill. Handb. Laubholzk.* II. 957, fig. 589 (1912).

Corylopsis macrostachya Pampanini in *Nuov. Giorn. Bot. Ital.* n. ser. XVII. 286, fig. 7 (1910).

Western Hupeh: Fang Hsien, side of streams, alt. 1000–1300 m. May 25, 1907 (No. 584; bush 6–8 m. tall, wood white and heavy,

bark grey, flowers in pendulous racemes); without locality, *A. Henry* (No. 6559).

Common in the sheltered valleys and ravines of north-western Hupeh, very rare elsewhere in the province and unreported from western Szech'uan. It is very partial to the sides of mountain-streams where it forms a large bush or bushy tree, and in general appearance resembles a witch-hazel. The spicate inflorescences are pendulous and very freely produced. The ripe seeds are ovoid or nearly so, about 8 mm. long, 4 mm. wide, obtuse, polished jet-black with pale grey hilum.

LOROPETALUM R. Br.

Loropetalum chinense Oliver in *Trans. Linn. Soc.* XXIII. 459, fig. 4 (1862). — Moore in *Jour. Bot.* XVI. 138 (1878). — Hance in *Jour. Bot.* XVI. 226 (1878). — Maximowicz in *Bull. Soc. Nat. Mosc.* LIV. pt. 1, 22 (1879). — Hemsley in *Jour. Linn. Soc.* XXIII. 290 (1887). — Diels in *Bot. Jahrb.* XXIX. 381 (1900).— Hemsley in *Bot. Mag.* CXXX. t. 7979 (1904). — Dunn & Tutcher in *Kew Bull. Misc. Inform.* Add. ser. X. 101 (*Fl. Kwangtung & Hongkong*) (1912).

Hamamelis chinensis R. Brown in Abel, *Narr. Jour. China*, 375, fig. (1818).

Kiangsi: Kiukiang, rocky places, foothills, alt. 300–1000 m., August 1907 (No. **1626**; bush 1–2 m.). Western Hupeh: vicinity of Ichang, rocky places, alt. 30–600 m., April and December 1907 (No. **3520**; bush 1–4 m. tall, flowers white); Changyang Hsien, rocky places, alt. 300–1000 m., April 1907 (No. **3520**[a]; bush 1–4 m. tall); Nanto, hillsides, March 1900 (Veitch Exped. No. 110), vicinity of Ichang, *A. Henry* (Nos. 254, 1634); "Kao-kien-scian," alt. 800 m., May 1907, *C. Silvestri* (No. 3331); "Monti di Nan-tcian," November 1907, *C. Silvestri* (No. 3332). Szech'uan: Nanch'uan, *A. von Rosthorn* (No. 164). Yunnan: Szemao, alt. 1300–1500 m., *A. Henry* (Nos. 12490, 12490[a]). Chekiang: vicinity of Ningpo, 1908, *D. Macgregor.* Fokien: vicinity of Amoy, April, *de la Touche;* Dunn's Exped. 1905 (ex Herb. Bot. Gard. Hongkong No. 2683); Fuchau, Hills near Pagoda Island, *W. R. Carles* (No. 88).

This handsome, spring-flowering shrub is abundant all over the warmer parts of China, especially in rocky places: round Ichang, where it is colloquially known as Chi-mu, it grows in association with *Rosa laevigata* Michaux and *Rosa microcarpa* Lindley, and forms a dense scrub on hills of conglomerate formation. It is also common on limestone cliffs and as an undergrowth in thin woods of Pine or Oak. Near Kiating and Omei-shan in western Szech'uan it abounds on the red-sandstone hills.

SYCOPSIS Oliv.

Sycopsis sinensis Oliver in *Hooker's Icon.* XX. t. 1931 (1890). — Diels in *Bot. Jahrb.* XXIX. 381 (1900). — Hemsley in *Hooker's Icon.* XXIX. sub t. 2834, fig. 1–3 (1907). — Bean in *Kew Bull. Misc. Inform.* XXII. 356 (1909).

Sycopsis sinensis, var. *integrifolia* Diels in *Bot. Jahrb.* XXIX. 381 (1900).

Western Hupeh: Changyang Hsien, thickets in ravines, alt. 600–1300 m., April 1907 (No. **2586**; bush 2–6 m. tall, anthers red); without locality, April 1901 (Veitch Exped. No. 1825); without locality, *A. Henry* (No. 6019). Eastern Szech'uan: north Wushan, *A. Henry* (No. 7574).

This evergreen is fairly common in ravines and rocky places near streams in western Hupeh up to 1300 m. alt., where it forms an erect but straggling bush, often over 6 m. tall. It has not been reported from western Szech'uan. Since entire and toothed leaves appear on the same branches there is no reason for separating the var. *integrifolia* Diels from the type.

To the type species of the genus *S. Griffithiana* Oliver, which seems to have not yet been reported from China, we refer Henry's No. 11464 from Mengtze. Here may also be added that through a misprint in the original description of *S. laurifolia* Hemsley the number of Henry's specimens on which the species was founded is given as 14365 instead of 11365.

HAMAMELIS L.

Hamamelis mollis Oliver in *Hooker's Icon.* XVIII. t. 1742 (1888). — Hooker in *Bot. Mag.* CXXIX. t. 7884 (1903). — Schneider, *Ill. Handb. Laubholzk.* I. 434 (1905). — Hemsley in *Gard. Chron.* ser. 3, LII. 488, fig. 211 (1912).

Hamamelis virginiana, var. *japonica* Franchet in *Nouv. Arch. Mus. Paris*, sér. 2, VI. 11 (*Pl. David.* I. 131) (1883).
Hamamelis mollis Hemsley in *Jour. Linn. Soc.* XXIII. 290 (nomen nudum) (1887).

Kiangsi: Kuling, thickets, alt. 600–1300 m., August 1907 (No. **1602**; bush 1–3 m. tall). Western Hupeh: Changyang Hsien, woods, alt. 1300–2300 m., April and September 1907 (No. **624**, in part; bush 2–5 m. tall, flowers golden yellow, base chocolate); Hsing-shan Hsien, woodlands, alt. 1300–2300 m., November 1907 (No. **624**, in part; bush 2–5 m. tall); Changlo Hsien, woodlands, alt. 1600–2300 m.,

April 1907 (No. 624[a]; bush 2–6 m. tall, flowers golden-yellow); without locality, April 1900 (Veitch Exped. No. 61), *A. Henry* (No. 6412).

One of the commonest woodland shrubs in western Hupeh between 1300–2500 m. alt. and more especially in the district of Changyang. It is also abundant on the Lushan mountains near Kiukiang but is unreported from western Szech'uan. The flowering season is late March and early April, when the blossoms are very conspicuous among generally leafless plants. The color of the seeds is jet black, not white, as stated by Hemsley (l. c.).

EUCOMMIACEAE.

Determined by E. H. Wilson.

EUCOMMIA Oliv.

Eucommia ulmoides Oliver in *Hooker's Icon.* XX. t. 1950 (1890); XXIV. t. 2361 (1895). — Weis in *Trans. Linn. Soc.* ser. 2, III. 243, t. 57, 58 (1892). — Diels in *Bot. Jahrb.* XXIX. 346 (1900). — *Kew Bull. Misc. Inform.* XIV. 89 (1901); XVII. 4 fig. (1904). — Schneider, *Ill. Handb. Laubholzk.* I. 424, fig. 270 (1904). — Finet & Gagnepain in *Bull. Soc. Bot. France,* LII. Mém. IV. 23 (1905); *Contrib. Fl. As. Or.* II. 23 (1907). — Mottet in *Rev. Hort.* 1909, 226, fig. 89, 90. — Pampanini in *Nuov. Giorn. Bot. Ital.* n. ser. XVIII. 114 (1911). — Rehder in *Möller's Deutsch. Gärtn.-Zeit.* XXVII. 11, fig. (1912).

Western Hupeh: Patung Hsien, cultivated, alt. 600–1600 m., April 1907 (No. **383**, in part; tree 5–20 m. tall, 0.3–1.5 m. girth); Changyang Hsien, commonly cultivated, alt. 600–1500 m., May and October 1907 (No. **383**, in part; tree 6–20 m. tall); north and south of Ichang, commonly cultivated, alt. 600–1600 m., June and October 1907 (No. **383**, in part; tree 6–20 m. tall, 0.3–1.5 m. girth); Hsing-shan Hsien, cultivated, May 1907 (No. **383**, in part; tree 6–20 m. tall); Fang Hsien, commonly cultivated, alt. 1300–1600 m., October 1907 (No. **383**; tree 10–20 m. tall); without precise locality, cultivated, October 1910 (No. **383**[a]); without locality, April and July 1900 (Veitch Exped. No. 629); Ichang, *A. Aldridge.*

This interesting tree grows to a moderate size and is commonly cultivated in western Hupeh and Szech'uan, occurring two or three together in the neighborhood houses, between alt. 300–2500 m. It is dicœcious and the peasants raise it from seeds or by coppicing. The bark, known as Tu-chung or Tsze-mien = silk thread, is a valuable Chinese drug, esteemed for various hepatic diseases, and as a diuretic, tonic and aphrodisiac. The removal of the bark causes the death of the tree, which probably accounts for it being so far unreported in a wild state.

Pictures of this tree will be found under Nos. 535, 676, 682, 068, and 0185, 0358 of my collection of photographs and also in my *Vegetation of Western China*, Nos. 213 and 214.

ROSACEAE.

NEILLIA G. Don.

Determined by ALFRED REHDER.

Neillia affinis Hemsley in *Jour. Linn. Soc.* XXIX. 304 (1892).

Neillia thyrsiflora Franchet in *Nouv. Arch. Mus. Paris*, sér. 2, VIII. 217 (*Pl. David.* II. 35) (non G. Don) (1886).

Western Szech'uan: Wa-shan, thickets, alt. 2000–2500 m., June and September 1908 (No. **916**[a]; bush 1–2 m. high, flowers rose-pink); same locality, July 1903 (Veitch Exped. No. 3559; flowers rose-pink); south-east of Tachien-lu, thickets, alt. 1600–2600 m., July 1908 (No. **2380**; bush 1–3 m. high, flowers rose-red); Mt. Omei, June 1904 (Veitch Exped. No. 4886); without precise locality, July 1904 (Veitch Exped. No. 3559, 3560), *A. Henry* (No. 8968, type).

This species seems to be most nearly related to *N. rubiflora* G. Don, but differs in the longer calyx-lobes, larger petals usually crenulate at the margin, in the densely villose ovary with the style not exceeding the calyx-tube and only just reaching the base of the stamens, and in the usually not distinctly 3-lobed leaves, while *N. rubiflora* has the ovary glabrous, the style as long as the stamens and distinctly 3-lobed leaves. Though I have not seen David's specimens referred by Franchet to *N. thyrsiflora* G. Don, I have little doubt that they belong to this species which has bristly fruits and resembles in foliage *N. thyrsiflora* more than any other species. Wilson did not collect this species near Mupin, although his specimens came from about the same region. It is less likely that Franchet's *N. thyrsiflora* belongs to his *N. thibetica* which Wilson collected near Mupin.

Neillia longiracemosa Hemsley in *Jour. Linn. Soc.* XXIX. 304 (1892).

Neillia rubiflora Franchet in *Nouv. Arch. Mus. Paris*, sér. 2, VIII. 217 (*Pl. David.* II. 35) (non G. Don) (1886).

Western Szech'uan: Mupin, thickets, alt. 1600–2500 m., June and September 1908 (No. **916**; bush 1.25–2 m. high, flowers rose-pink); Tachien-lu, thickets, alt. 2000–2600 m., July and September 1908 (No. **974**; bush 1–1.75 m., flowers pink); Ta-hsiang-ling, Ching-chi Hsien, thickets, alt. 1300–2600 m., June 1908 (No. **2381**; shrub 1.25–

3 m., flowers rose-pink); without precise locality, alt. 1300–3000 m., July 1904 (Veitch Exped. No. 3558).

Neillia longiracemosa is easily distinguished from *N. rubiflora* G. Don by the caducous bracts of the slenderer racemes, the narrower cylindric-campanulate calyx-tube short-pilose inside, the longer calyx-teeth which exceed the petals, the less numerous stamens and by the not distinctly 3-lobed leaves. The length of the racemes in the specimens collected by Wilson varies from 4–5 cm. and on some of them are found racemes up to 15 cm. in length, as stated by Hemsley in his description of this species.

Neillia thibetica Franchet in *Jour. de Bot.* V. 45 (1891).

Neillia velutina Franchet, l. c. in textu (1891).

Western Szech'uan: Tachien-lu, upland thickets, alt. 2600 m., October 1910 (No. **4220**[a]; bush 2 m. high); Mupin, alt. 1600–2600 m., October 1910 (No. **4220**; bush 1–2 m. high).

Judging from our specimens which are in fruit *N. longiracemosa* is closely allied to this species and perhaps is best referred to it as a variety with glabrous leaves, but as long as I have seen no flowering specimens, it seems best to keep them separate, though I cannot find any other difference between fruiting specimens of the two species than the pubescence of the leaves which seems variable and is denser in No. 4220[a] from Tachien-lu than in the Mupin specimen.

Neillia ribesioides Rehder, n. sp.

Frutex 1–2-metralis; ramuli leviter tortuosi, hornotini minute accumbenti-villosuli, flavo-brunnei, annotini brunnei, vetustiores griseo-brunnei, cortice fibroso solubili; gemmae perulis pluribus rotundatis atro-fuscis villoso-ciliolatis, glabris v. dorso minute pubescentibus. Folia triangulari-ovata, basi leviter cordata v. fere truncata, acuminata, 2–5 cm. longa et 1.5–4.5 cm. lata, leviter inciso-lobata lobis brevibus subduplicato-serratis dentibus obtusiusculis v. acutis, supra sparse accumbenti-pilosa, subtus ad venas densius, in facie sparse subaccumbenti-villosa, nervis utrinque 4–6 rectis; petioli pubescentes, 4–8 mm. longi; stipulae oblongae v. lanceolatae, obtusae v. acutae, integrae v. pauci-serratae, 4–5 mm. longae. Racemi solitarii, cum pedunculo 6–10 mm. longo 2.5–6 cm. longi, rhachi minute pubescente, bracteis lanceolatis sparse pubescentibus plerumque ante anthesin caducis; pedicelli fere glabri, 1–2 mm. longi; calycis tubus fere cylindricus, 6–7 mm., rarius tantum 4.5 mm. longus et 2.5–3 mm. diam., rubescens, extus glaber v. adpresse minute sericeus, intus parte inferiore excepta laxe pilosus; dentes ovati, acutiusculi v. subito breviter mucronulati, 2 mm. longi, intus villosuli; petala suborbiculari-rhombica,

alba, calycis dentes paullo superantia; stamina circiter 15, longiora dentibus calycis fere aequilonga, antheris purpureis; ovarium glabrum apice longe piloso excepto, stylo faucem paullo superante. Fructus deest.

Western Szech'uan: Pan-lan-shan, west of Kuan Hsien, thickets, alt. 2300–3000 m., June 21 and September 1908 (No. **2382**).

Neillia ribesioides seems most nearly related to *N. sinensis* Oliver, which differs in its slender pedicels, longer calyx-tube, with longer lanceolate teeth, and in the glabrous leaves. Our specimens of Wilson's No. 2382 contain two branches, one with a glabrous calyx-tube which I consider the typical form, and one with a somewhat shorter, finely pubescent calyx-tube only 4.5 mm. long.

Neillia sinensis Oliver in *Hooker's Icon.* XVI. 1540 (1886). — Hemsley in *Jour. Linn. Soc.* XXIII. 228 (1887). — Diels in *Bot. Jahrb.* XXIX. 382 (1900). — Schneider, *Ill. Handb. Laubholzk.* I. 446, fig. 285 o–p, 286 k^2 (1905).

Western Hupeh: north and south of Ichang, thickets, alt. 1000–2000 m., May 29 and September 1907 (No. **86**; bush, 1–2 m. high, flowers rosy-pink); Hsing-shan Hsien, thickets, alt. 1300–2000 m., June and September 1907 (No. **189**; bush 1.25–2 m. high, flowers pale pink); without precise locality, May 1900 (Veitch Exped. No. 701), *A. Henry* (No. 5554[a]). Szech'uan: *A. Henry* (No. 5695). Shensi: Tai-pei-shan, 1910, *W. Purdom* (Nos. 1, 467); Tai-pei-shan, July 20, 1897, *G. Giraldi:* "In-kia-po," June 4, 1897, *G. Giraldi.* Kansu: common on mountain sides, valley of the river "Tshiluco," June 18, 1885, *G. N. Potanin.*

Many of the specimens differ from the original description in having the calyx-tube furnished with long gland-tipped bristles, otherwise the specimens from the different provinces are remarkably uniform in foliage and flowers. A specimen from Yunnan, however, seems so different that it should be distinguished at least as a variety, and its description may be added here.

Neillia sinensis, var. **caudata** Rehder, n. var.

A typo differt foliis manifeste trilobatis longe caudato-acuminatis, majoribus ad 11 cm. longis, lobis acuminatis, floribus brevius pedicellatis pedicellis 2–3 mm. longis, tubo calycis breviore circiter 8 mm. longo glanduloso-setoso.

Yunnan: Mengtze, east mountains, alt. 2000 m., *A. Henry* (No. 9669; shrub, 3 m., flowers pink).

In foliage this variety resembles *N. thyrsiflora* G. Don, which also occurs in Yunnan and is represented by Henry's No. 12275 from Szemao, No. 9149 from Mengtze and by No. 13653 from south of the Red River; the flowers, however, differ but little from those of *N. sinensis*.

There is another specimen of *Neillia* from Yunnan collected by A. Henry near Mengtze which represents a new species, the description of which is appended here.

Neillia pauciflora Rehder, n. sp.

Frutex 0.50–1 m. altus, ramis gracilibus leviter flexuosis; ramuli hornotini flavo-brunnei v. brunnei, laxe villosi, mox glabrescentes, annotini castaneo-brunnei, nitiduli; gemmae atrobrunneae, perulis pluribus late ovatis glabris. Folia triangulari-ovata, basi aperte cordata v. subcordata, acuminata, 3–4.5 cm. longa et fere ac lata, 3-lobata lobis lateralibus late ovatis acutis, lobo medio leviter inciso-lobato lobulis ut lobi laterales inaequaliter serratis dentibus brevibus acutiusculis, supra laete viridia, sparse accumbenti-villosa, subtus pallide viridia ad venas venulasque flavescentes pilosa, nervis utrinque 5–6; petioli pubescentes, circiter 0.5 cm. longi; stipulae ovato-oblongae v. ovato-lanceolatae, 4–6 mm. longae, integrae v. pauci-dentatae, sparse pubescentes. Racemi breves, 5–10-flori, terminales, cum pedunculo brevi 2.5–3.5 cm. longi; bracteae ovato-oblongae v. lanceolatae, acuminatae, sparse pubescentes, caducae; pedicelli dense breviter villosi, circiter 1 mm. longi; tubus calycis urceolato-campanulatus, fauce plus minusve contractus, 4–6 mm. longus ac diam., dense breviter flavescenti-villosulus glandulis stipitatis intermixtis, dentes ovati, subito in acumen longum contracti, extus dense, intus parte inferiore excepta laxius villosuli, 2–2.5 mm. longi; petala rhombico-suborbicularia, ciliata, 2–2.5 mm. diam.; stamina circiter 20, petalis dimidio breviora; ovarium subglobosum, dense villosum, stylo glabro staminum basim vix attingente. Capsula subglobosa, 5 mm. diam., laxe villosa, calyce persistente villosululo setis glanduliferis instructo inclusa; semina pluria, 4–8, ovoidea, 1.75–2 mm. longa, castaneo-brunnea, nitida.

Yunnan: Mengtze, mountains to the north, alt. 2300 m., *A. Henry* (Nos. 10231[a], type, 10231).

Neillia pauciflora seems nearest to *N. rubiflora* G. Don, which differs chiefly in its many-flowered, sometimes compound racemes, the shorter acuminulate calyx-teeth, the longer and more numerous stamens, in the glabrous ovary and the style being about as long as the stamens. *Neillia gracilis* Franchet from Yunnan agrees with *N. pauciflora* in its few-flowered inflorescence and in the subglobose-campanulate calyx-tube, but is easily distinguished by its suffruticose habit, smaller leaves, slender petioles, 1–2 cm. long, by the longer pedicels, and by its 2-ovuled ovary.

STEPHANANDRA Sieb. & Zucc.

Determined by Alfred Rehder.

Stephanandra chinensis Hance in *Jour. Bot.* XX. 210 (1882). — Hemsley in *Jour. Linn. Soc.* XXIII. 228 (1887).

Stephanandra flexuosa, var. *chinensis* Pampanini in *Nouv. Giorn. Bot. Ital.* n. ser. XVII. 297 (1910).

Kiangsi: Kuling, abundant, alt. 1300 m., July 28, 1907 (No. 1724; bush 1.25–2 m.). Hupeh: "Ma-pan-scian," alt. 1000 m., May 1907, *C. Silvestri* (No. 1043).

Wilson's specimen is in fruit. It differs at the first glance from *S. incisa* Zabel in the much larger, less deeply incised leaves, and in their comparatively short petioles. The stipules described by Hance as linear-oblong vary in Wilson's No. 1724 from oblong-lanceolate on the flowering branches to broadly and obliquely ovate and irregularly dentate on vigorous shoots.

SPIRAEA L.

Determined by ALFRED REHDER.

Sect. 1. CHAMAEDRYON Ser.

Spiraea prunifolia Siebold & Zuccarini, *Fl. Jap.* I. 131 (1835). — Maximowicz in *Act. Hort. Petrop.* VI. 184 (1879). — Palibin in *Act. Hort. Petrop.* XVII. 1, 73 (1899). — Diels in *Bot. Jahrb.* XXIX. 382 (1900). — Matsumura & Hayata in *Jour. Coll. Sci. Tokyo*, XXII. 119 and 12 (1906).

Spiraea prunifolia, var. *typica* Schneider, *Ill. Handb. Laubholzk.* I. 450, fig. 288 g–h (1905).
Spiraea prunifolia, f. *simpliciflora* Nakai in *Jour. Coll. Sci. Tokyo* XXVI. Art. 1, 172 (1909).

Chekiang: Ningpo, 1908, *D. Macgregor*. Korea: near Seoul and Ping Yang, 1904, *J. G. Jack* (seeds[1]). Also in Formosa.

The specimen from Ningpo and from Formosa have the leaves pubescent like the double-flowered form, while on the specimens from Korea the leaves are glabrous with the exception of the pubescence on the under side of the midrib of very young leaves. The plants cultivated for nearly 20 years at the Arboretum have slightly pubescent leaves.

Spiraea prunifolia, var. **plena** Schneider, *Ill. Handb. Laubholzk.* I. 450 (1905).

Spiraea crenata, var. *foliis ovatis, floribus plenis* Thunberg, *Fl. Jap.* 211 (1784).
Spiraea prunifolia Siebold & Zuccarini, *Fl. Jap.* I. 131, t. 70 (1835). — Forbes & Hemsley in *Jour. Linn. Soc.* XXIII. 226 (1887). — Diels in *Bot. Jahrb.* XXIX. 382 (1900).

Western Hupeh: Hsing-shan Hsien, planted on graves, alt. 1000–1600 m., May 11, 1907 (No. 2755); without precise locality, May 1900 (Veitch Exped. No. 731), *A. Henry* (No. 5254).

In central China *S. prunifolia* is found apparently only in its double-flowered form as a cultivated plant. It is doubtful if Giraldi's No. 1136 referred by Diels to this species belongs to it.

Spiraea hypericifolia Linnaeus, *Spec.* I. 489 (1753). — Maximowicz in *Act. Hort. Petrop.* VI. 177 (1879). — Zabel, *Strauch. Spir.* 18 (1893). — Schneider, *Ill. Handb. Laubholzk.* I. 452, fig. 288 i–p, 289 c–d (1905).

[1] Plants raised from these seeds are growing in the Arnold Arboretum.

Spiraea acutifolia Willdenow, *Enum. Pl. Hort. Berol.* 540 (1809). — Guimpel, Otto & Hayne, *Abbild. Holz.* 9, t. 9 (1825). — Zabel, *Strauch. Spir.* 20 (1893).
Spiraea hypericifolia, var. *acuta* Seringe in De Candolle, *Prodr.* II. 543 (1825).
Spiraea hypericifolia, var. *acutifolia* Dippel, *Handb. Laubholzk.* III. 464 (1893).

The typical *S. hypericifolia* does not seem to occur in China.

Spiraea hypericifolia, var. **hupehensis** Rehder, n. var.

Frutex metralis ramis virgatis erectis; ramuli hornotini glabri. Folia oblonga v. elliptico-oblonga, utrinque acuta, apice argute serrulata, glabra, 1–1.8 cm. longa et 3–6 mm. lata. Flores in umbellis 2–4-floris, 8–10 mm. diam., pedicellis 8–14 mm. longis; petala orbiculari-obovata, 3–4.5 mm. diam.; stamina petalis dimidiis paullo breviores; folliculi sepalis duplo longiores, stylo recurvo.

Western Hupeh: Patung Hsien, Yangtze banks, steep dry cliffs, 30–300 m., March 24, 1908 (No. **2754**); without precise locality, March 1901 (Veitch Exped. No. 1754). Shensi: Yenan Fu, May 1910, *W. Purdom* (No. 346).

This variety differs from *S. hypericifolia*, var. *Plukinetiana* Seringe in the acute leaves sharply serrate at the apex, and from var. *acuta* Seringe in the large, nearly orbicular petals 3–4.5 mm. broad. Without well-developed leaves it looks much like *S. Thunbergii* Siebold, and probably the specimens from central China which have been referred to *S. Thunbergii* belong to this variety.[1]

[1] In this group belongs the following new species from Yunnan:

Spiraea fulvescens Rehder, n. sp.

Frutex vix metralis ramis virgatis; ramuli hornotini dense tomento fulvescenti vestiti, teretes, annotini tomentosuli, tarde glabrescentes; vetustiores fulvescenti-cinerei, cortice lamellis parvis solubili, ramulis valde abreviatis numerosis ferrugineo-tomentosis ob bases petiolorum persistentes congestos dense verrucosis instituti; gemmae parvae, globoso-ovoideae, obtusae, perulis pluribus dense fulvescenti-villosis. Folia pluria ad annum secundum persistentia, chartacea, partim fasciculata, supra glaucescenti-viridia, initio pilis minutis sparse conspersa, demum glabra, venarum reticulo leviter impresso, subtus glauca, sub lente papillosa, laxe, ad nervos densius villosa, ea turionum ovata v. fere rotundata, basi rotundata, v. ovalia et basi late cuneata, obtusiuscula, inaequaliter v. fere dupliciter crenato-serrata, 1.5–2 cm. longa et 1.2–2 cm. lata, ea fasciculorum obovata v. obovato-oblonga, basi cuneata, obtusa v. acutiuscula, apicem versus sparse crenato-serrata v. minora fere integra, 2–15 mm. longa et 4–8 mm. lata, venis utrinsecus 2–3; petioli villosi 1–2 mm. longi v. fere nulli. Umbellae 5–8-florae, sessiles, basi foliis fasciculatis parvis circumdatis et partim folio persistenti suffultae, numerosissimae et approximatae secus ramos virgatos; pedicelli 3–6 mm. longi, sparse villosi v. fere glabri; calyx extus glaber, tubus intus villosulus, calycis dentes ovato-triangulares, obtusi v. acuminulati, extus glabri, intus villosuli; petala rotundato-obovata, brevissime unguiculata, alba, 2 mm. diam.; stamina circa 20, petalis dimidio breviora; carpidia glabra; styli staminibus paullo breviores. Fructus calycis dentibus

Spiraea alpina Pallas, *Fl. Ross.* I. 35, t. 20 (1784).—Maximowicz in *Act. Hort. Petrop.* VI. 182 (1879).—Zabel, *Strauch. Spir.* 38 (1893).—Diels in *Bot. Jahrb.* XXIX. 382 (1900).—Schneider, *Ill. Handb. Laubholzk.* I. 456, fig. 289 i, 290 e–e³ (1905).

Western Szech'uan: Ta-p'ao-shan, north-east of Tachien-lu, heaths, alt. 4000–5000 m., July 7, 1908 (No. **2771**; shrub about 1 m. high, flowers white); without precise locality, grasslands, alt. 3700–4700 m., June 1904 (Veitch Exped. No. 3548; shrub 0.50–1 m. high). Shensi: Tai-pei-shan, 1910, *W. Purdom* (No. 5). Western Kansu: Min-chou district, alt. 3000 m., 1911, *W. Purdom.*

Wilson's specimens differ somewhat from the typical plant in the loosely appressed villose pubescence on the upper surface of the leaves. The calyx is deep red.

Spiraea myrtilloides Rehder, n. sp.

Frutex 2–3-metralis, ramosissimus, divaricatus; ramuli hornotini sparse villosuli, annotini angulati, castaneo- v. fusco-brunnei, glabrescentes, angulo saepe fere recto divergentes, vetustiores lamellis tenuibus decorticantes; gemmae ovatae, acutae, circiter 2 mm. longae, brunneae, perulis 6–8 sparse pubescentibus v. fere glabris ciliolatis obtectae. Folia subchartacea, ovalia, v. ovali-oblonga v. obovato-oblonga, integra, obtusa, rarius acutiuscula, minute mucronulata, basi cuneata v. late cuneata, 6–10 mm. longa et 3–6 mm. lata, supra glabra, obscure coeruleo-viridia, minute rugulosa, subtus pallidiora, laxe accumbenti-pilosa, margine villosula, nervis utrinsecus 3–5 inconspicuis subtus vix elevatis; petioli, circiter 1 mm. longi, tenues, villosuli. Inflorescentia umbellato-racemosa multiflora, densa, hemisphaerica, in apice ramulorum brevium paucifoliatorum, interdum fere sessiles, basi paucifoliatae; pedicelli graciles, 3–6 mm. longi, ut calyx sparse pilosi v. glabri; flores albi, 5–6 mm. diam.; sepala late triangularia acuta, margine villosula v. glabra; petala rotundata, basi vix contracta plerumque emarginata, 2.5 mm. diam.; discus conspicuus, erectis; folliculi erecti, 2.5 mm. longi, sepala duplo superantes, brunnei, nitidi, apice intus gibbosi, dorso stylum patentem subapicalem gerentes.

Yunnan: Mengtze, barren dry hills, alt. 1600 m., *A. Henry* (No. 10662).

This species seems most nearly related to *S. aquilegiifolia* Pallas and *S. anatolica* Haussknecht, but the first is easily distinguished by its thin glabrous leaves cuneate at the base and the second by the pubescent calyx, pubescent carpels, and by the cuneate leaves. It also resembles *S. yunnanensis* Franchet, but in that species the umbels are borne on short branchlets and the calyx is pubescent. The numerous short spurs densely covered with the persistent fulvously pubescent bud-scales and bases of the petioles give to the two and three years old branches a peculiar appearance.

lobatus, lobis apice plerumque leviter emarginatis; stamina 20, longiora petalis subaequilonga; carpidia glabra ventre villosulo excepto, in stylum apicalem attenuata; styli trientem staminum aequantes. Fructus sepalis erectis v. apice reflexis; folliculi erecti, flavescentes glabri, nitidi, vix 2 mm. longi, stylo persistente apicali horizontaliter patenti coronati.

Western Szech'uan: near Tachien-lu, upland thickets, alt. 3000–3300 m., June and September 1908 (No. **989**, type); west of Tachien-lu, uplands, alt. 3000–3300 m., June 1908 (No. **2760**); Washan, thickets, alt. 2700 m., July 1908 (No. **2761**); without precise locality, ravines, alt. 3700 m., June 1904 (Veitch Exped. No. 3556); heath, alt. 3300–4000 m., June 1904 (Veitch Exped. No. 3556[a]). Hupeh: *A. Henry* (No. 6968).

A graceful species resembling *Spiraea alpina* Pallas which is easily distinguished by its linear-lanceolate acute leaves papillose beneath and by the nearly sessile umbels. Wilson's No. 2761 differs from the type in its perfectly glabrous leaves and glabrous inflorescence borne on elongated, many-leaved branchlets 1.5–4 cm. long. Occasionally one of the lower pedicels is branched and bears two flowers. (See in this connection note on *S. Schneideriana*, var. *amphidoxa* Rehder, p. 450.) Henry's 6968 is also glabrous, but the flowering branchlets are short, while Wilson's No. 3556[a] differs in the more densely pubescent leaves, minutely pubescent also on their upper surface and in the more densely pubescent inner surface of the calyx-tube. Young seedling plants of this species have the leaves crenately serrate near the apex.

Spiraea gemmata Zabel, *Strauch. Spir.* 23 (1893). — Schneider, *Ill. Handb. Laubholzk.* I. 466, fig. 290 f–g (1905).

Spiraea mongolica Koehne, *Deutsch. Dendr.* 212 (non Maximowicz) (1893).

Western Szech'uan: around Sungpan, uplands, alt. 3000–3300 m., October 1910 (No. **4329**). Shensi: Tai-pei-shan, 1910, *W. Purdom* (No. **2**). Kansu: Min-chou, alt. 2800 m., 1911, *W. Purdom*.

Wilson's specimens differ slightly from the cultivated type in the dark brown branches and in the more strongly veined and somewhat broader leaves, which are 14–18 mm. long and 5–7 mm. broad, while in *Purdom's* specimen they are still broader. Plants distributed by the Veitchian nurseries under Wilson's seed numbers 1474 and 1690 belong to this species.

Spiraea mollifolia Rehder, n. sp.

Frutex 1–2-metralis, ramosissimus divaricatus, ramis longioribus arcuatis; ramuli hornotini laxe villosi, glabrescentes, annotini manifeste angulati, obscure purpureo-brunnei, glabri, vetustiores lamellis tenuibus v. striis decorticantes; gemmae ovoideae acuminatae, 3–4

mm. longae, valvatae perulis duobus exterioribus, glabrae, ramulo concolores. Folia membranacea, elliptico-oblonga v. oblonga, utrinque acuta, integra v. interdum apice tridentata, rarissime pluridentata, 1–2 cm. longa et 4–8 mm. lata, cinereo- v. pallide luteo-viridia, subconcoloria, utrinque pilis longis villosis densius v. laxius obtecta, nervis utrinsecus 2–4 angulo acutissimo divergentibus subtus leviter elevatis; petioli 1–2 mm. longi, sparse villosi. Inflorescentia umbellato-racemosa, densa, pluri- v. multiflora in apice ramulorum brevium paucifoliatorum; pedicelli 3–5 mm. longi, villosi; flores albi, circiter 8 mm. diam.; calyx extus villosus, tubo intus pubescenti, dentibus late ovato-triangularibus intus villosulis; petala rotundata, basi subito contracta, vix unguiculata, 3–3.5 mm. diam.; stamina 20, longiora petalis subaequilonga; carpidia pubescentia, stylum paullo infra apicem gerentia; discus conspicuus, lobatus, purpureus, lobis subglobosis; styli stamina dimidia subaequantes. Fructus calyce extus villoso, dentibus reflexis; folliculi erecti, flavescentes, laxe villosi, 1.5 mm. longi, ventre gibboso, dorso stylum patenti-erectum paullo infra apicem gerentes.

Western Szech'uan: north-east of Tachien-lu, ascent of Ta-p'ao-shan, alt. 3600–4600 m., July 6 and October 1908 (No. **1158**, type); Mupin, upland thickets, alt. 2700–3300 m., October 1908 (No. **1158**, in part); Tachien-lu, upland thickets, alt. 3000–3700 m., October 1910 (No. **4402**); without precise locality, woods and heaths, alt. 3000–3700 m., July 1904 (Veitch Exped. No. 3553); alt. 3600–4000 m., July 1903 (Veitch Exped. No. 3554).

Allied to *S. gemmata* Zabel which is easily distinguished, however, by its narrower glabrous foliage, glabrous inflorescence and slenderer branches. Wilson's No. 3554 differs from the type in the short, not silky-villose pubescence of the leaves and may not belong to this species. *Spiraea prostrata* Maximowicz which has the leaves of similar shape and pubescence, differs in its terete branches, small winter-buds with imbricate scales and glabrous inflorescence.

Spiraea laeta Rehder, n. sp.

Frutex 2-metralis ramis gracilibus virgatis; ramuli hornotini annotinique glabri, subalato-angulati, purpureo-brunnei, rarius flavido-brunnei; gemmae parvae, globoso-ovoideae, pluriperulatae, pubescentes. Folia tenuiter membranacea, ovata, v. elliptico-ovata, acuta, basi late cuneata v. rotundata, 2–3.5 cm. longa et 1–2.5 lata, rarius ad 4.5 cm. longa et basi cuneata, incise duplicato-serrata ima basi excepta, apicem versus simpliciter serrata, supra glabra, laete luteo-viridia, subtus pallide viridia, in axillis venarum subtus barbata et ad nervos sparsissime in foliis inferioribus interdum densius adpresse pilosa, rarius

glabra, nervis utrinsecus 4–5 rectis in dentes exeuntibus; petioli 3–6 mm. longi, graciles, glabri. Inflorescentia umbellato-racemosa, 6–15-flora, glabra, in apice ramulorum foliosorum plerumque brevium, interdum elongatorum; pedicelli graciles, 5–12 mm., rarius ad 18 mm. longi; calycis tubus late turbinatus, extus glaber, intus dense pilosus, dentes late triangulares, acuti, extus glabri, intus tomentosi; petala rotundata, 4 mm. diam.; stamina 40–50, petalis longiora; discus parvus, annularis, crenulatus; carpidia glabra, in stylum 3 mm. longum attenuata. Fructus dentibus calycis reflexis; folliculi exserti, intus apice gibbosi, extus styluus subapicalem patenti-reflexum gerentes.

Western Szech'uan: Fei-yueh-ling, Ching-chi Hsien, thickets, alt. 2000–2300 m., May 1908 (No. **2767**, type); Chiu-ting-shan, thickets, alt. 1500 m., May 22, 1908 (No. **2747**).

Spiraea laeta seems nearest related to *S. flexuosa* Fischer,[1] which is easily distinguished by the pale yellowish-brown branchlets, the conspicuous disk, pubescent ovaries, upright style borne on the inner side of the follicles, and by the narrower simply serrate leaves. The allied *S. anomala* Batalin differs in the pubescent ovaries and in the smaller leaves finely and closely serrate, scarcely incised and truncate at the base. No. 2747 differs from the type in its larger leaves cuneate at the base, glabrous beneath and up to 4.5 cm. long, and in its longer pedicels.

Spiraea laeta, var. **tenuis** Rehder, n. var.

A typo recedit foliis minoribus ovatis v. late ovatis, 1–2 cm. longis

[1] Another new species closely allied to *S. flexuosa* Fischer is the following:

Spiraea papillosa Rehder, n. sp.

Frutex 2–3-metralis ramis virgatis; ramuli hornotini annotinique glabri v. initio sparse pilosi, flavido-brunnei v. purpureo-castanei, acute angulati, subalati; gemmae ovoideae, obtusae, parvae, pubescentes, perulis exterioribus paucis imbricatis. Folia (ea ramulorum floriferorum tantum vidi) papyracea, oblonga, acuta v. breviter acuminata, basi late cuneata, supra medium grosse serrata dentibus acuminulatis utrinque 3–5, 3–4.5 cm. longa et 12–17 mm. lata, supra laete viridia, subtus glauca, dense papillosa, tota facie sparse, ad nervos densius pilis subaccumbentibus sericeis obtecta, nervis utrinsecus 3–4 supra leviter impressis subtus elevatis; petioli pubescentes, 2–3 mm. longi. Inflorescentia umbellato-racemosa, glabra, multiflora, in apice ramulorum patentium foliosorum, 5–10 cm. longorum; pedicelli graciles, 1–1.5 cm. longi; flores albi, 1 cm. diam.; calycis tubus late turbinatus, extus glaber, intus sparse pilosus, dentes late triangulares, acuminulati, extus glabri, intus villosuli; petala rotundata, 4.5 mm. diam.; stamina 40–50, petalis longiora; discus annularis, crenulatus; carpidia glabra, in stylum 4 mm. longum attenuata. Fructus maturus desideratur.

Szech'uan: valley of Tung river about 40 miles south-east of Tachien-lu, alt. 1300 m., May 1904, *E. H. Wilson* (Veitch Exped. No. 3550).

Closely allied to *S. flexuosa* Fischer which is easily distinguished by its glabrous or nearly glabrous thinner leaves, not glaucous and papillose beneath, by the inflorescence being borne on much shorter ascending branchlets and by the pubescent ovaries.

et 7–15 mm. latis, sparsius et minus profundi serratis, minoribus fere simpliciter crenato-serratis, umbellis minoribus 5–10-floris.

Western Szech'uan: Pan-lan-shan, west of Kuan Hsien, thickets, rare, alt. 3600 m., June 24, 1908 (No. **2772**; bush, 1 m., flowers white).

Smaller in all the parts than the type, with nearly simply crenate-serrate leaves; a very delicate looking form.

Another variety, collected during the Veitch Expedition, is the following:

Spiraea laeta, var. **subpubescens** Rehder, n. var.

A typo recedit foliis densius et argutius inciso-serratis subtus laxe sericeo-pilosis, inflorescentiis plerumque in apice ramulorum brevium 5–9-floris.

Western Hupeh: Patung Hsien, April 1900 (Veitch Exped. No. 97).

In the more closely and sharply serrate leaves this variety resembles *S. anomala* Batalin, but that species differs in the glabrescent leaves truncate at the base, and in its pubescent carpels.

Spiraea chinensis Maximowicz in *Act. Hort. Petrop.* VI. 193 (1879). — Koehne, *Deutsch. Dendr.* 213 (1893). — Zabel, *Strauch. Spir.* 39 (1893). — Schneider, *Ill. Handb. Laubholzk.* I. 463, fig. 290 s–t[1], 291 l (1905).

Spiraea pubescens Lindley in *Jour. Hort. Soc. Lond.* II. 157 (non Turczaninow) (1847); in *Bot. Reg.* XXXIII. t. 38 (1847).

Spiraea dasyantha Hemsley in *Jour. Linn. Soc.* XXIII. 224 (pro parte, non Bunge) (1887).

Kiangsi: Kuling, thickets, common, alt. 1300 m., July 28, 1907 (No. **1718**). Western Hupeh: north and south of Ichang, ravines, etc., alt. 300–1000 m., April and December 1907 (No. **771**); Hsing-shan Hsien, thickets, alt. 1000–1300 m., May and December 1907 (No. **758**); without locality, April 1900 (Veitch Exped. No. 67, flowering specimen only). Fokien: April to June 1905, *S. T. Dunn* (Hongkong Herb. No. 2657).

In the Hupeh specimens the pubescence is thinner and less fulvous than in the Kiangsi and Fokien specimens. The cultivated plant resembles the specimens from Kiangsi and Fokien.

Spiraea hirsuta Schneider in *Bull. Herb. Boissier*, sér. 2, V. 342 (1905); *Ill. Handb. Laubholzk.* I. 463, fig. 292 n–p[1] (1905).

Spiraea Blumei, var. *hirsuta* Hemsley in *Jour. Linn. Soc.* XXIII. 224 (1887).

Western Hupeh: Hsing-shan Hsien, ravines, alt. 600 m., May 7, 1907 (No. **2768**); Ichang, *A. Henry* (No. 3506); without precise locality, *A. Henry* (No. 4115). Shensi: Tai-pei-shan, 1910, *Wm. Purdom* (Nos. 4, 9).

Spiraea hirsuta is very near *S. chinensis* Maximowicz, but that species is chiefly distinguished by the green, not glaucescent, more densely and yellowish pubescent lower surface of the leaves and their sharper and closer serration with acute teeth. The difference in the color of the pubescence is only well marked on leaves of the vigorous leafy shoots, and is often scarcely noticeable on those of flowering shoots.

Spiraea hirsuta, var. **rotundifolia** Rehder, n. comb.

Spiraea Blumei, var. *rotundifolia* Hemsley in *Jour. Linn. Soc.* XXIII. 224 (1887).

Spiraea Maximowicziana Schneider, *Ill. Handb. Laubholzk.* I. 461 (1905).

Western Hupeh: Changlo Hsien, thickets, side of streams, alt. 600–1000 m., May 1907 (No. **2770**); without precise locality, *A. Henry* (No. 3570, 3506[a]).

Wilson's No. 2770 and Henry's No. 3570 differ from No. 3506[a] which seems to be the type of this variety, in the leaves being crenately serrate from below the middle. Henry's No. 3506 in the Arnold Arboretum Herbarium belongs to *S. hirsuta*, although Schneider quotes this number as the type of his *S. Maximowicziana*.

Spiraea tortuosa Rehder, n. sp.

Frutex metralis ramulis angulatim flexis; ramuli hornotini albido-tomentosi, hornotini rubro-brunnei; gemmae parvae, perulis paucis glabrescentibus brunneis obtectae. Folia decidua, late ovalia v. fere suborbicularia, basi et apice rotundata, supra medium sparse inciso-crenato-serrata, v. subduplicato-serrata dentibus obtusiusculis utrinque 2–3, 1–1.5 cm. longa et 9–12 mm. lata, supra cinereo-viridia, dense villosula, subtus albido-villoso-tomentosa, nervis rectis utrinque 2–3; petioli tomentosi, 1–3 mm. longi. Inflorescentia subumbellata, 5–12-flora, brevissime pedunculata, 1.5–2 cm. diam., in apice ramulorum paucifoliatorum, circiter 0.5 mm. longorum; pedicelli circiter 0.5 mm. longi, ut calyx villoso-tomentosi; flores 7 mm. diam., albi; sepala ovato-triangularia, extus villosa, intus glabra; petala suborbicularia, 3 mm. diam.; stamina 20, petalis triente breviora; discus conspicuus, lobatus, purpureo-brunneus, lobi distincti cum staminibus interioribus alternantia, dorso canaliculati staminibus seriei exterioris canaliculo adpressis; carpidia villosa; styli staminibus dimidio breviores. Fructus maturus desideratur.

Western Szech'uan: Mao-chou, arid regions of the Min Valley, alt. 1300–2000 m., May 25, 1908 (No. **2764**).

Spiraea tortuosa presents a very distinct appearance with its strikingly zigzag branches, the small and sparse foliage, and the numerous, small and rather dense flower-clusters on very short branchlets. It seems most nearly related to *S. hirsuta* Schneider, but is easily distinguished from that species by its zigzag branchlets, the small suborbicular leaves and the small inflorescence.

Spiraea ovalis Rehder, n. sp.

Frutex 2–3-metralis ramis virgatis; ramuli teretes, glabri, hornotini purpurascentes, annotini fusci; gemmae ovoideae, parvae, obtusiusculae, pubescentes, perulis pluribus imbricatis obtectae. Folia decidua, ovalia, obtusa, rarius acutiuscula, integra, interdum apice crenato-serrata, basi late cuneata v. fere rotundata, 1.5–2 cm. longa et 0.6–1.2 cm. lata, supra laete luteo-viridia, glabra, subtus pallide viridia, reticulo nervorum colore obscuriore conspicuo, glabra v. secus costam basim versus pilis sparsis instructa, nervis utrinsecus 3–4 subtus leviter elevatis; petioli graciles, purpurascentes, glabri, 1–3 mm. longi. Corymbus multiflorus convexus, glaberrimus, in apice ramulorum plurifoliatorum 2–3 cm. longorum, 2.5–3.5 cm. diam.; flores albi, 5 mm. diam.; calycis tubus late turbinatus, extus glaber, purpurascens, intus breviter pilosus, dentes ovato-triangulares, acuti, intus apice villosuli; petala suborbicularia, 1.5 cm. longa et 2 mm. lata; stamina 20, petalis subaequilonga; discus conspicuus, 10-lobatus, lobis distinctis apice et dorso leviter sulcatis; carpidia sparse villosa, stylis apicalibus quam dimidia stamina paullo brevioribus. Fructus maturus desideratur.

Western Hupeh: Fang Hsien, thickets, rare, alt. 2000–2300 m., June 16, 1910 (No. **4573**).

Allied to *S. Veitchii* Hemsley, which is easily distinguished by the pubescent inflorescence, the smaller flowers and by the puberulous branchlets and leaves.

Spiraea Blumei G. Don, *Gen. Syst.* II. 518 (1832). — Maximowicz in *Act. Hort. Petrop.* VI. 196 (1879). — Morren in *Belg. Hort.* VIII. 131, t. 37, fig. 2 (1858). — Siebold in *Jaarb. Maatsch. Aanmoed. Tuinb.* 1845, 76, t. 8. — Zabel, *Strauch. Spir.* 44 (1893). — Schneider, *Ill. Handb. Laubholzk.* I. 465, fig. 290 v–x, 291 h (1905).

Spiraea chamaedrifolia Blume, *Bijdr. Fl. Ned. Ind.* 1114 (pro parte, non Linnaeus) (1826).

Kiangsi: Kuling, abundant, alt. 1300 m., July 30, 1907 (No. **1721**; shrub 1–2 m. high). Western Hupeh: Hsing-shan Hsien, ravines, etc., alt. 600–1300 m., August 6, 1907 (No. **2769**; shrub 0.6–1.20 m. high, flowers white); Ichang, *A. Henry* (No. 3570); without precise locality, *A. Henry* (No. 1181); "Ma-pan-scian," alt. 1000 m., May 1907, *C. Silvestri* (No. 1026). Eastern Szech'uan: Taning Hsien, thickets, alt. 2000 m., June 25, 1910 (No. **4570**). Shensi: "Kin-gua-san," July 10, 1897, *G. Giraldi.*

A picture of this shrub in bloom will be found under No. 0147 of Wilson's collection of photographs.

Spiraea Henryi Hemsley in *Jour. Linn. Soc.* XXIII. 225, t. 6 (1887).—Veitch in *Jour. Hort. Soc. Lond.* XXVIII. 61, fig. 20 (1903).—*Garden* LXV. 44, fig. (1904). — Schneider, *Ill. Handb. Laubholzk.* I. 469, fig. 292 w–w³ (1905). — Bean in *Bot. Mag.* CXXXV. t. 8270 (1909).

Western Hupeh: Hsing-shan Hsien, thickets, alt. 1700–2700 m., May 6, 1907 (No. **490**, in part; bush 1–2 m. high, stems arching); Changyang Hsien, thickets, alt. 1300–2000 m., June and October 1907 (No. **490**, in part); without precise locality (Veitch Exped. No. 921). Szech'uan: Mupin, thickets, alt. 1300–2000 m., June and October 1908 (No. **1318**); Wa-shan, thickets, alt. 2000–2300 m., October 1908 (No. **1172**); Niu-tou-shan, west of Kuan Hsien, thickets, alt. 2000–2500 m., June 20, 1908 (No. **2765**; bush 1–4 m. high); Pan-lan-shan, west of Kuan Hsien, alt. 2700–300 m., October 1910 (No. **4327**; bush 2.25–3.25 m. high) around Sungpan, uplands, alt. 2600–3200 m., October 1910 (No. **4404**); south Wushan, *A. Henry* (No. 5750); without precise locality, *A. Henry* (Nos. 5645ª, 7335).

Wilson's No. 1318 from Mupin differs from the Hupeh specimens slightly in the more strongly veined leaves, while Nos. 1172, 2765 and 4327 somewhat resemble in their narrower and longer leaves *S. Wilsonii* Duthie; that species is, however, easily distinguished by its denser glabrous inflorescence.

Spiraea Sargentiana Rehder, n. sp.

Spiraea canescens, var. *sulfurea* Diels in *Bot. Jahrb.* XXIX. 383 (non Batalin) (1900).

Frutex 1–2-metralis, ramis virgatis; ramuli teretes, hornotini puberuli, mox glabrescentes, annotini fusci v. flavo-fusci; gemmae ovoidea, obtusiusculae, brunneae, parvae, petiolo multo breviores, perulis pluribus imbricatis glabrescentibus obtectae. Folia decidua, elliptico-oblonga, basi in petiolum attenuata, acuta, apice pauciserrata v. rarius integra, 1.5–2.5 cm. longa et 4–10 mm. lata, supra obscure viridia, minute villosula, subtus dense et plerumque pubescenti-villosa, rarius laxe et adpresse villosa, nervis utrinsecus 3–4 angulo acutissimo divergentibus supra leviter impressis subtus elevatis; petioli 1–2 mm. longi, sparse pubescentes. Inflorescentia multiflora densa, 2.5–4 cm. diam., villosa, convexo-corymbosa, in apice ramulorum foliosorum 2–4 cm. longorum; flores 5–6 mm. diam.; calycis tubus late turbinatus, extus

villosus, intus sericeo-pilosus, dentes ovato-triangulares, acuti, extus villosi, intus apicem versus ferrugineo-villosi ceterum glabri; petala rotundata, apice leviter emarginata, 2 mm. longa et 2.5 mm. lata, in sicco flavescentia; stamina 20, petala fere aequantia; discus pallidus, 10-lobatus lobis distinctis leviter emarginatis; carpidia pilosa stylis apicalibus stamina dimidia aequantibus. Fructus sepalis erecto-patentibus; folliculi sepala vix superantes, 2 mm. longi, pallide flavo-brunnei, nitentia, fere glabra, intus apice gibbosi, extus stylum subapicalem patentem v. patenti-erectum gerentes; semina fusiformia, 1.2 mm. longa et 0.3 mm. diam., utrinque acuta, pallida brunnea, minutissime reticulata.

Western Szech'uan: west and near Wên-ch'uan Hsien, dry places, alt. 1000–1300 m., June and November 1908 (No. **1318**[a], type); near Mao-chou, arid places, roadsides, alt. 1000–1600 m., May 24, 1908 (No. **2766**); Szu-ma-chi, *A. von Rosthorn* (No. 2555).

This species is most closely related to *S. Henryi* Hemsley, which is easily distinguished by its larger and broader leaves, usually abruptly narrowed at the base, larger flowers and larger and looser inflorescence. *Spiraea canescens* G. Don and its variety *sulphurea* Batalin, with which it had been confused, probably on account of the similarity in size and shape of the leaves, is well distinguished by the angular branches and by the pointed winter-buds covered by only two outer scales.

Spiraea aemulans Rehder, n. sp.

Frutex 2-metralis ramis virgatis; ramuli teretes, hornotini dense fulvescenti-villosi, annotini apicem versus villosi basim versus glabrescentes, brunnei, vetustiores glabri, griseo-brunnei; gemmae ovoideae, obtusiusculae, circiter 1 mm. longae, obscure brunneae, pubescentes, perulis imbricatis pluribus obtectae. Folia decidua, elliptica v. elliptico-oblonga, basi cuneata, apice pauciserrata v. integra, acuta v. obtusiuscula, 1–2.5 cm. longa et 0.6–1 cm. lata, supra luteo-viridia, villosa, subtus sericeo-villosa, densius ad venas, nervis utrinsecus 3–4; petioli 1–2.5 mm. longi, villosi. Inflorescentia corymbosa, multiflora, densa, convexa, dense villosa, 1.5–2.5 cm. diam., in apice ramulorum plurifoliatorum, 0.5–1.5 cm. longorum; flores 4–5 mm. diam., albi; calycis tubus aperte turbinatus, extus villosus, intus pilosus, dentes triangulari-ovati, acuti, extus villosi, intus glabri, apicem versus tantum villosuli; petala rotundata, 1.5 mm. longa et 2 mm. lata; stamina 20, petalis subaequilonga; discus conspicuus, pallidus, plerumque 10-lobatus lobis distinctis leviter emarginatis; carpidia pilosa, stylis apicalibus vix 1 mm. longis. Fructus maturus desideratur.

Western Hupeh: Fang Hsien, uplands thickets, alt. 2700 m., June 1910 (No. **4571**).

This species is closely related to *S. Henryi* Hemsley and *S. Sargentiana* Rehder and is chiefly characterized by its dense pubescence of long and nearly straight, loosely appressed hairs. The former is easily distinguished by its slighter woolly pubescence, the larger leaves, larger flowers and larger inflorescence, and *S. Sargentiana* by the short pubescence, narrower strongly veined leaves and less densely pubescent branchlets. *Spiraea aemulans* might possibly be considered a variety of the latter, but the pubescence gives to it a very distinct appearance and a resemblance to *S. mollifolia* Rehder or to the pubescent form of *S. media* Schmidt.

Spiraea Veitchii Hemsley in *Gard. Chron.* ser. 3, XXXIII. 258 (1903). — Veitch in *Jour. Hort. Soc. Lond.* XXVIII. 61 (1903); XXXV. cliii, fig. 98 (1906). — Bean in *Bot. Mag.* CXXXVII. t. 8383 (1911).

Western Hupeh: Fang Hsien, upland, thickets, alt. 2000–2800 m. July and November 1907 (No. **568**; bush 2–4 m. high); alt. 2300–3000 m., October 1910 (No. **4461**); Changlo Hsien, thickets, rare, alt. 2000–2300 m., July 1907 (No. **568**, in part); without precise locality, June 1900 (Veitch Exped. No. 2276, type). Szech'uan: Taning Hsien, uplands, alt. 2000 m., June 25, 1910 (No. **4572**; bush, 1.25–3.25 m. high); Mupin, thickets, alt. 2000–3000 m., June and October 1908 (No. **1160**; bush 2–3.25 m. high); without precise locality, July 1903 (Veitch Exped. No. 3549; bush 1.25–2 m. high).

A picture of this shrub in bloom will be found under No. 0149 of Wilson's collection of photographs.

Spiraea Schneideriana Rehder, n. sp.

Frutex 1–2-metralis ramis virgatis arcuatis; ramuli hornotini sparse villosuli, annotini angulares, obscure brunnei, glabri; gemmae ovoideae, parvae, obtusiusculae, brunneae, paucis perulis obtectae. Folia decidua, ovalia v. ovali-oblonga, obtusa, basi late cuneata v. fere rotundata, 9–12 mm. longa, 5–7 lata, integra utrinque glabra sed ad marginem villosula, supra obscure luteo-viridia, subtus pallida v. glaucescentia, nervis utrinsecus 3–4; petioli glabri, 1 mm. longi. Corymbus convexus, 3–4 cm. diam., villosulus, in apice ramulorium foliosorum 2–4 cm. longorum; flores 6 mm. diam., albi; calycis tubus turbinatus, extus sparse villosulus, intus glaber, dentes ovato-triangulares acuti, extus fere glabri, intus sparse villosuli; petala rotundata v. obovato-rotundata, 2.5 cm. longa et 2 cm. lata, irregulariter emarginata et interdum erosa; stamina 20, petalis paullo longiora; discus annularis, dorso leviter striatus, interdum irregulariter lobatus; carpidia glabra, stylis

apicalibus trientem staminum aequantibus. Fructus maturus desideratur.

Western Szech'uan: without precise locality, alt. 2000–2700 m., July, 1904 (Veitch Exped. No. 3557).

Spiraea Schneideriana seems most closely related to *S. ovalis* Rehder which differs from it in its terete branchlets, glabrous inflorescence and villose carpels; it is also closely related to *S. Veitchii* Hemsley which is easily distinguished by the terete branchlets, longer and larger leaves, puberulous beneath, more compound inflorescence, and by its smaller flowers. Named in compliment to Mr. Camillo Schneider (see p. 133 under *Lonicera Schneideriana*).

Spiraea Schneideriana, var. **amphidoxa** Rehder, n. var.

A typo recedit inflorescentia glabra v. fere glabra, minus composita, foliis base plerumque late cuneatis, ramulis sparsius villosulis v. glabrescentibus.

Western Szech'uan: Wa-shan, alt. 2700–3800 m., July 1903 (Veitch Exped. No. 3557[a], type); Monkong Ting, ascent of Hsao-chin-ho, alt. 2300–3000 m., June 1908 (No. **2763**; bush, 2–4 m. high).

The specimen from Mongkong Ting differs from the type of this variety in the somewhat larger flowers with a lobed disk and broader petals, perfectly glabrous leaves, finely ciliate in No. 3557[a], and in the nearly glabrous branchlets. In its glabrous inflorescence, the variety is still closer to *S. ovalis* than the type, but can be easily distinguished from it by the angular branchlets, narrower leaves and green calyx. In general appearance and in most characters, particularly in the foliage, it is remarkably similar to *S. myrtilloides* Rehder which has simple umbel-like racemes, and it might possibly be considered a variety with a compound inflorescence of that species of which the lower pedicels sometimes bear two flowers.

Spiraea canescens G. Don, var. **oblanceolata** Rehder, n. var.

A typo recedit foliis ramulorum floriferorum et fasciculatis et basilibus turionum obovato-oblongis v. oblanceolatis integris glaucescentibus glabris margine sparse ciliato excepto v. interdum subtus ad venas sparse pilosis, eis turionum plerumque obovatis integris v. apice paucidentatis magis pubescentibus, inflorescentia et calyce breviter et sparsim pilosis fere ut in varietate *glaucophylla* Franchet, cui haec varietas simillima foliis oblanceolatis exceptis.

Western Szech'uan: Monkong Ting, descent of Hsao-chin-ho, alt. 2300–2700 m., June 1900 (No. **2762**; bush 2–3 m. high).

This variety is very close to *S. canescens*, var. *glaucophylla* Franchet (*S. canescens*, var. *sulphurea* Batalin) which differs only in its obovate leaves and slightly less pubescent calyx. The pubescence of the calyx is apparently variable; Wilson's No. 3551 of the Veitch Expedition from Tachien-lu, which I refer to *S. canescens*, var. *glaucophylla*, differs from the type of var. *sulphurea* collected in nearly the same locality, in the more densely pubescent calyx and capsules. The yellow color

noticed by Batalin in the flowers of this variety is quite noticeable in the dried specimens, although in the living plant the flowers are probably white. This change of color seems to occur occasionally in other species, and also in Wilson's No. 2765 of *S. Henryi* the flowers are decidedly yellowish.

Spiraea Rosthornii Pritzel in *Bot. Jahrb.* XXIX. 383 (1900).

Spiraea Prattii Schneider, *Ill. Handb. Laubholzk.* I. 472 (1905).

Western Szech'uan: north-east of Tachien-lu, woods and thickets, alt. 3300 m., July 4 and October 1908 (No. **965**[a]; shrub 1–2 m. high; west and near Wên-ch'uan Hsien, thickets, alt. 1700–2700 m., July 1908 (No. **965**[b]); same locality, October 1910 (No. **4305**); Mupin, thickets, alt. 2000–2500 m., June 1908 (No. **2758**; bush, 1.75–2 m. high); Wa-shan, thickets, alt. 2000–2600 m., June and September 1908 (No. **965**; bush 1–2 m., flowers white); same locality, alt. 1700–2300 m., June 1908 (No. **2759**; bush, 1–1.75 m. high); Niu-tou-shan, west of Kuan Hsien, alt. 2000–2700 m., June 20, 1908 (No. **2748**); without precise locality, alt. 3300–4000 m., July 1903 (Veitch Exped. No. 3555[a]); Nanch'uan, *A. von Rosthorn* (No. 1837, type).

This species is very near *S. longigemmis* Zabel which differs chiefly in its glabrous, less deeply and closer serrate leaves. Pritzel describes the buds as spherical, "gemmis sphaericis," but a fragment of the type specimen which I have before me and which agrees in every other particular with the description has winter-buds like those of *S. longigemmis*. *Spiraea Rosthornii* is possibly only a pubescent variety of *S. longigemmis*. To the latter I refer Wilson's Veitch Exped. No. 3555[b] from western Szech'uan.

Spiraea japonica Linnaeus f., *Suppl.* 262 (1781). — Maximowicz in *Act. Hort. Petrop.* VI. 203 (1879). — Hemsley in *Jour. Linn. Soc.* XXIII. 225 (1887). — Zabel, *Strauch. Spir.* 64 (1893). — Schneider, *Ill. Handb. Laubholzk.* I. 475, fig. 294 m, 295 k–l (1905).

Spiraea callosa Thunberg, *Fl. Jap.* 209 (1784). — Seringe in De Candolle, *Prodr.* II. 544 (1825).

The type does not seem to occur in China.

Spiraea japonica, var. **Fortunei** Rehder in Bailey, *Cycl. Am. Hort.* IV. 1703 (1902).

Spiraea callosa Lindley & Paxton, *Flow. Gard.* II. 113, fig. 191 (non. Thunberg) (1851).

Spiraea Fortunei Planchon in *Fl. des Serr.* IX. 35, t. 871 (1853). — Hooker f. in *Bot. Mag.* LXXXVI. t. 5164 (1860).

Kiangsi: Kuling, roadsides, abundant, alt. 1300 m., July 30, 1907 (No. **1717**; bush 0.75–1 m., flowers pink). Western Hupeh: Fang

Hsien, roadsides, etc., alt. 1300–1600 m., July 1907 (No. **2752**, in part; bush 1–1.25 m. high, flowers white); Patung Hsien, roadsides, common, alt. 1300 m., July 1907 (No. **2752**, in part; bush 1–1.25 m. high, flowers white); without precise locality, June 1900 (Veitch Exped. Nos. 1183, 1183[a]), *A. Henry* (No. 5993).

This form is usually referred to the typical *S. japonica*, from which it differs chiefly in its glabrous, much larger leaves, more cuneate at the base and in the perfectly terete branchlets.

Spiraea japonica, var. **ovalifolia** Franchet in *Nouv. Arch. Mus. Paris*, sér. 2, VIII. 218 (*Pl. David.* II. 36) (1885).

Western Szech'uan: Mupin, thickets, alt. 1700–2000 m., October 1908 (No. **1153**; bush, 1–1.25 m. high; and No. **1193**, seeds only); Wa-shan, thickets, alt. 1700–2300 m., July and September 1908 (No. **2746**; bush 1–1.75 m. high, flowers white); without precise locality, alt. 2700–3000 m., July 1903 (Veitch Exped. No. 3555; bush 0.60 m. high).

No. 2746 has elliptic to elliptic-oblong leaves and approaches the var. *Fortunei*.

Spiraea japonica, var. **acuminata** Franchet in *Nouv. Arch. Mus. Paris*, sér. 2, VIII. 218 (*Pl. David.* II. 36) (1885).

Western Szech'uan: Wa-shan, roadsides, alt. 1700–2500 m., August 1908 (No. 579, in part; bush 1–1.25 m. high, flowers deep pink); west and near Wên-ch'uan Hsien, thickets, alt. 1300–2000 m., July 1908 (No. **2753**; bush, 1 m. high, flowers red); Mupin, roadsides, alt. 1300–2000 m., August 1908 (No. **579**, in part; bush, 1–1.25 m. high, flowers deep pink); Mt. Omei, July 1904 (Veitch Exped. Nos. 4841, 4842); South Wushan, 1901 (Veitch Exped. No. 997, in part, as to the fruiting specimen); without precise locality, *E. Faber* (No. 543). Western Hupeh: north and south of Ichang, roadsides, alt. 1000–1700 m., July and November 1907 (No. **579**, in part; bush, 0.75–1.75 m. high, flowers pink); Hsing-shan Hsien, roadsides, alt. 1000–1700 m., July 1907 (No. **579**, in part; bush, 0.75–1.75 m. high, flowers pink); Fang Hsien, September 1900 (Veitch Exped. No. 1510).

The specimen from Mupin is glabrous, and the leaves glaucescent beneath and so approaches the var. *Fortunei*. The specimen from Wên-ch'uan Hsien is only slightly pubescent on the veins, while all the other specimens are more densely pubescent beneath, but green, not glaucescent as described by Franchet.

Here may be added a new variety from Yunnan collected by *A. Henry*:

Spiraea japonica, var. **stellaris** Rehder, n. var.

A typo recedit foliis dense et argute duplicato-serratis subtus ad venas pilosis 4–5 cm. longis, folliculis stellatim erecto-patentibus minoribus 2 mm. longis.

Yunnan: Mengtze, south-western mountains, alt. 2000 m., *A. Henry* (No. 9280; shrub, 2 m. high).

The spreading follicles, which are not upright as in the type, and the very dense and closely serrate leaves give to this plant a very distinct appearance, and when the flowers are known, it may possibly prove to be a distinct species.

Spiraea Fritschiana Schneider, *Ill. Handb. Laubholzk.* I. 477 (1905).

Spiraea japonica, var. *typica* Gilg in *Bot. Jahrb.* XXXIV. Beibl. LXXV. 39 (non Thunberg) (1904).

Western Hupeh: Hsing-shan Hsien, roadsides, moist places, alt. 1000–1300 m., May 1907 (No. **2750**; bush, 1–1.25 m. high); without precise locality, June 1900 (Veitch Exped. No. 987). Shensi: Kin-ten-shan, July 14, 1897, *G. Giraldi:* "Kan-y-san, Lao-y-san," June 11–12, 1897, *G. Giraldi.* Shantung: Tsingtau, 1901, *Zimmerman* (No. 382).

This species seems most closely related to *S. betulifolia* Pallas; the flowers are apparently white, about 7–8 mm. in diameter; the disk is conspicuous, annular and crenate at the margin; the stamens are much longer than the petals; and the carpels are villose; the outside of the calyx and the inflorescence are quite glabrous and usually purplish like the young branchlets. Probably Forbes' specimens from Chifu, referred by Hemsley to *S. betulifolia*, belong to this species.

Spiraea Fritschiana, var. **angulata** Rehder, n. var.

Spiraea angulata Schneider, *Ill. Handb. Laubholzk.* I. 477 (1905).

Western Hupeh: Changlo Hsien, side of streams, alt. 1000–1700 m., June 1907 (No. **2749**; bush, 1.25–2 m. high, flowers pink and white). Shensi: Tai-pei-shan, 1910 *Wm. Purdom* (Nos. 1, 3); "Lao-y-san," June 4, 1897, *J. Giraldi:* "Ta-sce-truen," September 18, 1897, *J. Giraldi.* Shantung: Tsingtau, *Zimmermann* (No. 344). Shinking: Tsien-shan, June 7, 1906, *F. N. Meyer* (No. 92). Korea: "Mt. des Diamants," June 22, 1901, *U. Faurie* (No. 312).

This variety differs from the type in its glabrous leaves which vary in shape from broadly ovate and subcordate at the base, as in the original specimen of *S. angulata*, to oblong-elliptic; No. 344 from Tsingtau is represented in the Arnold Arboretum Herbarium by two branches, one with subcordate and broadly ovate leaves, the other with elliptic and cuneate leaves, both about 4–5 cm. long; No. 2749 from Hupeh is also represented by two branches, one with elliptic leaves 3–4 cm. long, the other with elliptic-oblong leaves 7–10 cm. long. The fact that the pubescent and the glabrous form are found together at Tsingtau and appear again both in Hupeh and Shensi, is a further proof that they are only varieties of one species. The specimen from Shingking resembles the type of this variety in its distinctly ovate leaves, but they are rounded and inclined to be broadly cuneate, never subcordate at the base, and do not exceed 3.5 cm. in length. The specimen from Korea differs more widely in its oblong or elliptic-oblong and nearly doubly serrate leaves.

This may be a distinct species, but with the material before me I am unable to find other differences.

Spiraea Miyabei Koidzumi in *Tokyo Bot. Mag.* XXIII. 166 (1909).

Japan: Yezo, near Sapporo, on hills to the west, June 1890, *K. Miyabe;* banks of the Togobira River, June 11, 1885 (*Herb. Agric. College, Sapporo*).

The specimens before me seem to differ from the original description only in the somewhat broader leaves which are 2–3 cm. broad and therefore ovate to ovate-oblong. A number of related forms appear in western and central China which I am unable to separate specifically from *S. Miyabei*. From *S. japonica* Thunberg they differ in the glabrous branchlets, the slender petioles, the stalked, leafless and rather compact inflorescence, the glabrous or glabrescent calyx, and in the white flowers; from *S. bella* Sims they differ in the perfect, usually white flowers, the larger leafless inflorescence with nearly horizontally spreading branches, the glabrous young branchlets, and in the larger usually acuminate, doubly serrate leaves; from *S. betulifolia* Pallas in the slenderer petioles, the acuminate doubly serrate leaves, and in the usually pubescent inflorescence; and from *S. Fritschiana* Schneider in the doubly serrate leaves, in the terete or nearly terete pale branches, and in the usually pubescent inflorescence. In foliage they resemble also *S. anomala* Batalin and *S. laeta* Rehder, and in habit *S. chamædryfolia* Linnaeaus; they are, however, at once distinguished from these three species by the compound inflorescence.

Spiraea Miyabei, var. **glabrata** Rehder, n. var.

A typo recedit praecipue inflorescentia glabra, foliis basi late cuneatis, sed interdum fere rotundatis.

Western Hupeh: Hsing-shan Hsien, woodlands, etc., alt. 1300–1800 m., June 4 and August 1907 (No. **195**; bush, 1–1.75 m. high, flowers white, type); mountains north of Ichang, alt. 1300–1600 m. (No. **385**, seeds only); Fang Hsien, woodlands, alt. 1300–2000 m., June 4 and November 1907 (No. **577**; bush, 1–1.75 m. high, flowers pinkish). Changlo Hsien, moist places on roadsides, alt. 1000–1600 m., June 1907 (No. 2751; bush, 1–1.75 m. high, flowers white); without precise locality, June 1901 (Veitch Exped. No. 1199). Shensi: Tai-pei-shan, July 4, 1910, *Wm. Purdom* (No. 7); valleys leading to Tai-pei-shan, July 1, 1908, *Wm. Purdom* (No. 427; bush, 2 m., flowers white).

This variety somewhat resembles in its glabrous inflorescence *S. betulaefolia* Pallas and *S. Fritschiana* Schneider but is easily distinguished by the characters pointed out in the note under the species. Nos. 2751 and 1199 differ from the type of this variety in their larger leaves, up to 10 cm. long and 5.5 cm. broad; the flowers also are somewhat larger.

A picture of this shrub in full bloom will be found under No. 0107 of Wilson's collection of photographs.

Spiraea Miyabei, var. **pilosula** Rehder, n. var.

A typo recedit foliis basi cuneatis subtus ad costam venasque adpresse villosis, supra sparsius adpresse pilosis v. fere glabris, saepius magis profundi inciso-serratis, calyce extus sparse piloso.

Western Hupeh: Hsing-shan Hsien, woodlands, etc., alt. 1000–1600 m., June and October 1907 (No. **2756**, type; bush, 1–2 m. high, branches arching, flowers white); same locality, June 1907 (No. **2757**; bush, 1.25–2 m. high; flowers white); without precise locality, *A. Henry* (No. 6333). Szech'uan: south Wushan, May 1901 (Veitch Exped. No. **997**, in part, as to the flowering specimen); without precise locality, ***A. Henry*** (No. 5628).

This variety differs from the type chiefly in the cuneate leaves pubescent below. The forms with more deeply incised leaves, as No. 997 and Henry's 5628, have some resemblance to *S. Rosthornii* Pritzel, but are easily distinguished from it by the short and small winter-buds, the glabrous or glabrescent branchlets, and by the less pubescent inflorescence.

Here may be added the description of yet another variety based on material collected during the Veitch expedition:

Spiraea Miyabei, var. **tenuifolia** Rehder, n. var.

A typo recedit foliis majoribus ad 7 cm. longis et 3.5 cm. latis basi cuneatis, subtus glaucescentibus, petiolis gracilioribus ad 1 cm. longis, ramulis perfecte teretibus.

Western Szech'uan: Mt. Omei, June 1904 (Veitch Exped. No. 4840).

SIBIRAEA Maxim.

Determined by Alfred Rehder.

Sibiraea laevigata Maximowicz in *Act. Hort. Petrop.* VI. 215 (1879).

Spiraea laevigata Linnaeus, *Mant.* II. 244 (October 1771). — Kerner, *Darstell. Vorzuegl. Ausl. Baeum. Gestr.* 4, t. 29 (1796). — Guimpel, Otto & Hayne, *Abbild. Holz.* 113, t. 89 (1825).

Spiraea altaiensis Laxmann, in *Acad. Sci. Petrop. Comm. Nov.* XV. 554, t. 29 (1771).

Sibiraea altaiensis Schneider, *Ill. Handb. Laubholzk.* I. 486, fig. 297 e–f¹, 298 i–p (1905).

Sibiraea laevigata, var. **angustata** Rehder, n. var.

A typo recedit foliis anguste lanceolatis 3–10 cm. longis et 7–15 mm. latis acutiusculis mucronatis, nervis minus distinctis vix curvatis et praecipue inflorescentia et interdum tubo calycis breviter villosis.

Western Szech'uan: Pan-lan-shan, west of Kuan Hsien uplands, alt. 4000–4500 m., June 24, 1908 (No. **2773**, type; shrub, 1–1.30 m.

high); without precise locality, heath, alt. 3600–4500 m., August 1903 (Veitch Exped. No. 3547); shrub 1–1.60 m. high. Western Kansu: Min-chou, Tow River, alt. 3300 m., 1911, and Min-chow and Choni districts, 1911, *W. Purdom* (No. 791).

This variety differs chiefly in its pubescent inflorescence from the type and from *S. laevigata*, var. *croatica* Schneider, but resembles the latter in habit and in the narrow, indistinctly veined leaves, though in the var. *croatica* they are always obtuse and sometimes even emarginate, while in the var. *angustata* they are hardly obtuse and rather gradually narrowed into the mucronate apex; in the type the leaves are always distinctly oblanceolate or even oblong-obovate and are sometimes 2.5 cm. broad by 9 cm. long. A plant raised from Chinese seed collected by Mr. Wilson agrees in the shape of the leaves with the Chinese herbarium specimens, but the inflorescence is glabrous or nearly so, which would tend to show that this character is not to be depended upon. Among Purdom's specimens I also find a single branch with a glabrous inflorescence, while all the others were distinctly villose.

I have retained the specific name *laevigata* for the plant, as I am not convinced that the volume which contained Laxmann's description was published earlier than Linnaeus' Mantissa, which appeared in October 1771. Laxmann read his paper at the June meeting, 1771, of the St. Petersburg Academy, but the volume containing his paper and dated 1771 was probably published not much before the end of that year. (See also Ascherson in *Sitzb. Ges. Naturf. Freunde, Berlin*, 1905, 220).

EXOCHORDA Lindl.

Determined by ALFRED REHDER.

Exochorda racemosa Rehder, n. comb.

Amelanchier racemosa Lindley in *Bot. Reg.* XXXIIII. sub t. 38 (1847).
Spiraea grandiflora Hooker in *Bot. Mag.* LXXX. t. 4795 (1854). — Planchon in *Fl. des Serr.* IX. 247, t. 954 (1854).
Exochorda grandiflora Lindley in *Gard. Chron.* 1858, 925. — Hance in *Jour. Bot.* XVI. 10 (1878). — S. Moore in *Jour. Bot.* XVI. 138 (1878). — Maximowicz in *Act. Hort. Petrop.* VI. 230 (1879). — Lavallée, *Icon. Arb. Segrez.* 37, t. 11–12 (1880). — Hemsley in *Jour. Linn. Soc.* XXIII. 228 (1887). — Schneider, *Ill. Handb. Laubholzk.* I. 494, fig. 301 (1905).

Chekiang: Ningpo, 1908, *D. Macgregor*. Kianghuai: Nanking, *Barchet* (No. 229); without precise locality, *E. Faber*. Also in Kiangsu.

Exochorda racemosa, var. **Wilsonii** Rehd., n. var.

A typo recedit praecipue foliis, floribus, fructibus majoribus, petalis angustioribus basi sensim et longe angustatis. Folia obovata, ovalia v. elliptica, interdum supra medium dentata, ad 7 cm. longa et 3.5 lata. Petala ad 2.5 cm. longa. Fructus turbinatus, 1.5 cm. longus.

Western Hupeh: Hsing-shan Hsien, cliffs, alt. 600–1300 m., May 25 and October 1907 (No. **397**, in part, type; bush 2–3.25 m., flowers

white, occasionally tinged pink); Changlo Hsien, cliffs, alt. 1300 m., May 1907 (No. 397, in part; bush, 3.25 m., flowers white).

This variety is larger in every part and more vigorous than the type; the flowers are open in the centre on account of the longer and narrower claws of the petals.

Here may be added a variety from Shensi:

Exochorda racemosa, var. **Giraldii** Rehder, n. var.

Exochorda Giraldii Hesse in *Mitteil. Deutsch. Dendr. Ges.* XVII. 191, 219 (1908), XVIII. 295, fig. (1909); in Fedde *Rep. Spec. Nov.* VIII. 347 (1910).

A typo recedit foliis omnibus integris, rarissime indistincte crenato-serratis graciliter petiolatis petiolis ad 2.5 longis plerumque purpureis, ramulis pallide brunneis v. purpureis, fructibus turbinatis 13 mm. longis.

The slender red petioles give to this variety a very distinct appearance; even at the end of the branchlets where the petioles of the type and of var. *Wilsonii* are hardly 1 cm. long, they are in this variety about 2 cm. long. The leaves are of firmer texture only very rarely slightly serrate and smaller than those of the preceding variety which it resembles in flower and fruit. In the original description the flowers were described as "rubro-maculata," but this is apparently an error, and the petals are normally white.

Shensi: "Lao-y-san," 1897, *G. Giraldi;* "Kin-qua-san," July 10, 1897, *G. Giraldi;* Tai-pei-shan, 1910, *W. Purdom* (No. 1); Moutan-shan, north-west of Han-cheng Hsien, 1910, *W. Purdom* (No. 361); "Hu-kia-scien," 1897, *Hugh Scallan.*

SORBUS L.

Subgen. AUCUPARIA.

Determined by E. KOEHNE.

Sorbus expansa Koehne, n. sp.

Arbor 8-metralis; truncus 20 cm. diam; rami suppetentes crassi, 5–8 mm. diam., sordide cinerei; gemmae 1.5–1.8 cm. longae, apice parce rufo-villosae. Stipulae herbaceae, magnae, 10–14 mm. latae, dentatae, dentibus seta decidua terminatis, autumno deciduae; folia cum petiolo 2.5–5 cm. longo 9.5–18.5 cm. longa, (6–)7-juga; rhachis exalata, densissime tomentoso-albicans v. -subochracea, interstitiis circiter 0.8–1.4 (–2) cm. longis; foliola infima 2 minora, cetera aequilonga v. suprema tantum subdecrescentia, basi primo aspectu acuta sed revera hinc anguste cordata (lobulo rhachin tegente), late lanceolata v. lanceolato-elliptica, majora 3.5–6 cm. longa, 0.9–1.3 cm. lata, sensim angustata v. subacuminata acutissima mucronata, tertia v. dimidia parte integra, superne argute serrulata dentibus angustissimis v. fere subulatis porrectis utrinsecus circiter 6–18, supra in costa nervisque densius ceterum parcissime v. haud albido-

villosa mox glabrata, subtus inifio dense lanata sed mox in costa tantum pubescenti-villosa ceterum glabra v. in nervis inferioribus parce villosa, nervis utrinsecus circiter 14–16 teneris subtus prominulis, reticulo tenerrimo subtus saturatius colorato, juvenilia membranacea; epidermis sub microscopio utrinque irregulariter striata sed epapillosa. Inflorescentia ramum elongatum terminans, 12–16 cm. lata, 6–9 cm. longa valde convexa, ramulis primariis patentissimis expansa, ante anthesin e glomerulis multis confertifloris composita, tomento densissimo subochraceo-albicans, autumno glabrata, in pedunculo et intra basin ipsam folia circiter 7 gerens. Flores nimium juveniles (alabastris suppetentibus vix ultra 1 mm. diam.); carpidia 3 v. 4, inde a placenta segregata, apice villosiuscula. Fructus globosus, circiter 5–6 mm. diam., ruber, sepalis horizontaliter inflexis.

Western Hupeh: north and south of Ichang, woods, alt. 1300–2300 m., May and October 1907 (No. 406).

A very distinct species, which is not only well marked by the white tomentum of the petioles, rhachis and the axes of the inflorescence, but also by the unusually numerous large stipules of often abortive leaves on the peduncle and at the base of the inflorescence. Here may possibly belong:

S. Wilsoniana? var. (a) nova Schneider in *Bull. Herb. Boissier*, sér. 2, VI. 313 (1906). "Differt foliis angustioribus, subtus magis pubescentibus, foliola maxima 7: 2 cm. Hupeh, Henry (No. 3757). Noch junge Exemplare mit unentwickelten Blütenständen, die höchst wahrscheinlich später vom Typ abweichen."

Sorbus Wilsoniana C. K. Schneider in *Bull. Herb. Boissier*, sér. 2, VI. 312 (1906); *Ill. Handb. Laubholzk.* I. 671, fig. 367 k, 368 p–q (1906).

Ad descriptionem addenda v. emendanda: Arbor 5–10-metralis; rami 5–7 mm. diam., cinerei; gemmae sub anthesi 0.5 cm. longae, summo apice tantum albo-sericeae. Stipulae saltem folii supremi herbaceae magnae, ad 10 mm. latae, dentatae dentibus seta decidua terminatis, inferiores jam sub anthesi deciduae; folia cum petiolo 4.5–6.5 cm. longo 22–25 cm. longa, 6–7-juga; rhachis exalata, subtus parce v. densiuscule pubescens, interstitiis 1.8–2.3 cm. longis; foliola inde a pari tertio v. quarto deorsum decrescentia, superiora aequalia v. supremi paris minora, basi hinc rotundata v. subcordata, illinc versus costam contracte, oblonga v. oblongo-lanceolata, majora 6–8.3 cm. longa, 2–2.8 cm. lata, acutissima v. vix acuminata, tertia v. dimidia parte integra, superne serrulata dentibus utrinsecus circiter 8–20, nervis utrinsecus circiter 17–20 subtus prominulis, reticulo tenerrimo subtus saturatius colorato, juvenilia membranacea; epi-

dermis supra laevis, subtus epapillosa v. hinc inde circa stomata obscure papillosa, ceterum irregulariter reticulato-striata cellularum limitibus plus minus absconditis. Inflorescentia verisimiliter ramum longiorem terminans, 15–17 cm. lata, 9 cm. longa, subconvexa v. valde convexa, densiflora, parce pubescens; flores mense Majo aperti; cupula glabra v. basi parum pilosa; sepala glabra; petola circiter 3.3 mm. longa, glabre v. supra piles paucissimis tenerrimis barbulata, staminibus subaequilonga, alba. Carpidia 3, 4, inde a placenta segregata, apice cum stylorum basi lanata.

Western Hupeh: Changyang Hsien, woods, alt. 1300–2000 m., June 1907 (No. **553**, flowering branches; the fruiting branches belong to *Micromeles* sp.); Patung, May 1901 (Veitch Exped. No. 985).

Sorbus Esserteauiana Koehne, n. sp.

Frutex v. arbor 4–8-metralis; rami 5–6 mm. diam., cinerei; gemmae autumno 0.7 cm. longae, albicanti-sericeae. Stipulae herbaceae, inferiores parvulae 5–7 mm., supremae magnae 10–17 mm. latae, dentatae, dentibus seta decidua terminatis; folia cum petiolo 4–5 cm. longo 15–26 cm. longa, 5–6 juga; rhachis exalata, laxe lanata demum plus minus glabrata, supra purpurascens, interstitiis 1.8–4 cm. longis; foliola inde a pari tertio deorsum decrescentia, cetera aequalia v. suprema minora, e basi hinc rotundata, illinc paullo supra basin contracta, oblonga v. late lanceolata, majora 5–9 cm. longa, 1.7–2.8 cm. lata, apice angustata v. subacuminata acutissima, basi v. tertia parte integra, ceterum argute serrulata v. serrata dentibus utrinsecus circiter 8–20 patulis, supra laete viridia glabra, subtus molliter lanato-tomentosa viridi-albicantia, nervis utrinsecus circiter 12–16 supra demum leviter impressis subtus prominulis, reticulo supra vix prominulo subtus sub tomento abscondito, papyracea, demum sub-coriacea; epidermis supra laevis, subtus summopere reticulato-papillosa, papillis confertis elatis apice scaberrimis. Inflorescentia ramum verisimiliter longiorem terminans, 11.5–14 cm. lata, 8–9 cm. longa, subconvexa v. valde convexa, patens, densiflora, lanato-tomentosa albicans v. inferne glabriuscula, demum multo glabrior; flores versus finem mensis Junii aperti; cupula lanato-albicans; sepala margine apiceque glabra; petala circiter 4 mm. longa, ex unguiculo brevissimo latissimo rotundato-ovata, glabra, filamentis aequilonga; carpidia 3 v. 4, inde a placenta segregata, apice lanata. Fructus globosus, circiter 4–6 mm. diam., scarlatinus, sepalis oblique connidentibus.

Western Szech'uan: Chiu-ting-shan, cliffs, rare, alt. 2600 m., June 22, 1908 (No. **3012**); Mupin, woods, alt. 2000–2600 m., June and October 1908 (No. **1128**).

This species I have named at the request of Mr. Wilson in compliment of Dr. Esserteau, bacteriologist, at one time attached to the Medical School at Chengtu, to whom Mr. Wilson is indebted for much kindly service during the years 1908 and 1910.

Sorbus Conradinae Koehne, n. sp.

Arbor 6–8–metralis trunco 20–25 cm. diam.; rami 5–8 mm. diam., cinerei; gemmae 0.7–1 cm. longae, supra medium v. summo apice tantum albicanti-sericeae. Stipulae herbaceae, magnae, circiter 1 cm. latae, dentatae, pro parte v. omnes persistentes; folio cum petiolo 2.5–6 cm. longo (16–)20–27 cm. longa, 5–6–juga; rhachis exalata, lanato-tomentosa, demum plus minus glabrata, saepe purpurea, interstitiis 2–2.7 cm. longis; foliola inde a pari tertio deorsum sursumque decrescentia, basi hinc rotundata, illinc supra basin contracta, oblonga v. oblongo-lanceolata, media 6–8 cm. longa, 2–3.2 cm. lata, breviter angustata v. subacuminata acutissima, basi v. quarta parte integra ceterum argute serrata dentibus pro parte subduplicatis, primariis utrinsecus circiter 10–22 patulis, supra glabra, subtus lanato-tomentosa alba costa ochracea v. purpurascente, nervis utrinsecus circiter 12–15 supra argute impressis subtus valde prominentibus, reticulo supra prominulo subtus sub tomento abscondito, demum coriacea; epidermis supra laevis, subtus summopere reticulato-papillosa, papillis elatis confertis apice scaberrimis. Inflorescentia verisimiliter ramum longiorem terminans, 12–14 cm. lata, 8–20 cm. longa, convexa, densiflora, initio verisimiliter albotomentosa sed autumno plus minus glabrata. Flores ignoti; carpidia 4, inde a placenta segregata, apice villosiuscula. Fructus globosus circiter 4–6 mm. diam., scarlatinus v. rubro-aurantiacus sepalis horizontaliter inflexis.

Western Szech'uan: west and near Wên-ch'uan Hsien alt. 2000–2500 m., September 1908 (No. **1015**); same locality, woodlands, alt. 2600–3000 m., October 1910 (No. **4156**); Pan-lan-shan, west of Kuan Hsien, woods, alt. 3000 m., October 1910 (No. **4321**).

The species is named for the wife of the author. It differs from *S. Esserteauiana* Koehne in its broader leaflets with the veins deeply impressed above and strongly elevated beneath, and in their snowy white, not greenish white, under surface.

Sorbus Sargentiana Koehne, n. sp.

Arbor 6–10-metralis trunco 10–25 cm. diam., rami 5–8 mm. diam., pallide olivaceo-cinerei; gemmae circiter 1.2 cm. longae, parcissime villosae. Stipulae herbaceae, magnae, 10–17 mm. latae, dentatae, saltem pro parte persistentes; folia cum petiolo (4–)5–7 cm. longo (18–)22–28 cm. longa, (3–)4–5-juga; rhachis exalata, pubescenti-tomentosa demum plus minus glabrata ac purpurascens, interstitiis 2.5–3.2 cm. longis; foliola pari infimo supremoque minore excepto subaequalia v. aequalia, basi hinc rotundata illinc supra basin contracta, oblongo-lanceolata, majora 8.5–13.5 cm. longa, 2.6–3.9 cm. lata, longe sensim acuminata acutissima, tertia v. quarta parte integra superne argute serrata v. serrulata dentibus utrinsecus circiter 28–52, supra parce tenerrime villosa mox glabrata, subtus in costa nervisque densius ceterum parce lanata demum glabrata, costa subtus subochracea, nervis utrinsecus circiter 20–35 supra leviter demum argute impressis subtus prominentibus, reticulo supra obscuro v. parum impresso subtus demum pro parte prominente, chartacea v. demum subcoriacea; epidermis supra laevis, subtus reticulato-papillosa papillis brevibus v. brevissimis apice scaberrimis. Inflorescentia verisimiliter ramum longiorem terminans, 15 cm. lata, 8.5–10.5 cm. longa, convexa, confertiflora, lanato-tomentosa albicans v. subochracea demum subglabra; flores mense Junio aperti; cupula villoso-tomentosa, sepala glabra; petala circiter 3.5–4 mm. longa, vix unguiculata, ovato-rotundata, medio supra pilis paucis obsita, alba, staminibus subaequilonga v. parum breviora; carpidia 3 v. 4, raro 5, inde a placenta segregata, apice lanata. Fructus globosus, circiter 5–6 mm. diam., scarlatinus v. rubro-aurantiacus, sepalis erectis.

Western Szech'uan: Pan-lan-shan, west of Kuan Hsien, woodlands, alt. 2300–3200 m., June 1908 (No. **3011**); Wa-wu-shan, Hung-ya Hsien, alt. 2600 m., September 14, 1908 (No. **887**); Mupin, woodlands, alt. 2000–2600 m., October 1910 (No. **4207**).

A remarkable species which like *S. insignis* Hedlund (*Pyrus insignis* Hooker f.) is apparently one of the most beautiful of the whole genus.

Though *Sorbus insignis*, of which I have seen no specimens, seems very similar to *S. Sargentiana*, it is not probable that the two are identical, because it is rare that China has a species in common with the Himalaya. A very large number of Chinese plants have been referred indeed to Himalayan species, but mostly without justification, for a closer study has shown almost always that the Chinese species are well distinguished from the supposed Himalayan species. The number, too, of species which are common to China and Japan is far smaller than has been generally supposed. For example, of the 27 Chinese species of Sorbus not a single one occurs in Japan.

Sorbus scalaris Koehne, n. sp.

Frutex 5–7-metralis; rami 3–4 mm. diam., cinerei; gemmae 6 mm. longae, summo apice tantum albo-sericeae. Stipulae herbaceae, superiores magnae ad 11 mm. latae, dentatae, persistentes; folia cum petiolo 1.5–2.5 cm. longo demum purpurascente 10–18 cm. longa, 12–13-juga; rhachis superne angustissime alata, laxiuscule lanata dein glabrescens, interstitiis circiter 1 cm. longis; foliola media aequalia, cetera inde a pari circiter quarto deorsum, a pari nono v. decimo sursum decrescentia, patentissima quasi scalam imitantes, basi hinc subcordata illinc obtusa, late linearia marginibus rectis parallelis, media 2.2–4 cm. longa, 0.5–0.8 cm. lata, obtusa v. acuta, apice tantum dentibus utrinsecus 1–6 argute serrulata, supra subcano-viridia glabra, subtus albida laxeque arachnoideo-lanata, costa subtus ochracea, nervis utrinsecus circiter 11–13 supra impressis subtus prominentibus, reticulo supra prominulo subtus inconspicuo, papyracea demum subcoriacea; epidermis supra laevis, subtus valide reticulato-papillosa papillis apice scabris. Inflorescentiae ramulos laterales abbreviatos (quorum pars vetustior circiter 2 cm. longus) terminantes (an etiam ramulos longiores?), 13–14 cm. latae, 8–10 cm. longae, confertiflorae glomerulis saepe subremotis, dense albo-lanatae demum plus minus glabratae; flores mense Junio aperti; cupula sepalaque glabra; petala circiter 3.5 mm. longa, brevissime late unguiculata, rotundato-ovata, glabra, alba, staminibus circiter aequilonga; carpidia 3 v. 4, summo apice tantum segregata, apice villosa. Fructus globosus circiter 5 mm. diam., ruber, sepalis conniventibus.

Western Szech'uan: Wa-shan, woods, alt. 2000–2600 m., June and October 1908 (No. **922**).

This species is very near *S. pluripinnata* (Schneider) Koehne (*S. foliolosa*, var. *pluripinnata* Schneider); but this latter has only 10–12 pairs of shorter leaflets, an inflorescence 9 cm. in diameter and carpels separated to the placenta. *Sorbus pluripinnata* has no close connection with *S. foliolosa;* and Schneider seems to have overlooked its large herbaceous stipules which are wanting in *S. foliolosa.*

Sorbus Helenae Koehne, n. sp.

Arbor 3–7-metralis; rami 5–8 mm. diam., cinerei v. nigricantes; gemmae sub anthesi 0.7–0.9 cm. longae, glabrae v. subglabrae. Stipulae siccae, parvae, lanceolatae v. oblongae, circiter 3–5 mm. longae, integrae v. apice denticulatae, sub anthesi persistentes; folia cum petiolo 2.5–5 cm. longo 13–20 cm. longa, 3–4-juga; rhachis e facie superiore alata, sed alis plerumque inflexis, glabra v. subtus laxiuscule rufo-villosa, interstitiis 2–2.5 cm. longis; foliola infima 2 paullo v.

multo minora, cetera aequalia v. suprema 2 paullo minora, basi hinc rotundata v. subcordata illinc paullo supra basin contracta, oblonga v. late elliptica, majora 5–9.5 cm. longa, 2–3.5 cm. lata, brevissime acutissime cuspidata, basi v. quarta parte integra, ceterum inaequaliter hinc inde subduplicato-crenulata v. crenato-serrulata, dentibus utrinsecus circiter 30–50 glandula triangulari adusta decidua terminatis, supra nitidula glabra v. pilis longis rufis teneris conspersa, subtus pallidius viridia secus costam parce v. dense, interdum etiam secus nervos rufo-lanata ceterum glabra v. parce rufo-pilosa, nervis utrinsecus circiter 15–20 subtus vix prominulis, reticulo tenero subtus saturatius colorato, papyracea; epidermis supra laevis subtus epapillosa striis paucis tenerrimis obsita. Inflorescentia ramum verisimiliter longiorem terminans, 8–14 cm. lata, 7–10 cm. longa, plana v. convexa e glomerulis densifloris composita, basi subglabra apice laxe v. inde a basi dense rufo-lanata; flores fine mensis Junii aperti; cupula glabra, sepala rufo-ciliata; petala circiter 4 mm. longa, e basi late cuneata rotundato-ovata, glabra, alba, staminibus duplo longiora; carpidia 5, tota connata, apice glabra, sed styli ima basi villosiuscula. **Fructus ignotus.**

Duae forsan formae distinguendae:

Sorbus Helenae, f. **subglabra** Koehne, n. f.

Rhachis glabra; foliola longiora angustiora longitudine latitudinem triplam v. fere quadruplam aequante, supra glabra, subtus juxta costam nervosque brevius minusque dense rufo-lanata ceterum glabra. Inflorescentiae inferne glabrae, superne laxiuscule rufo-lanatae.

Western Szech'uan: summit of the Niu-tou-shan, west of Kuan Hsien, alt. 3000 m., June 30, 1908 (No. **3009**).

Sorbus Helenae, f. **rufidula** Koehne, n. f.

Rhachis subtus rufo-lanata; foliola breviora latiora longitudine latitudinem duplam aequante vel paullo superante, utrinque pilis conspersa subtusque in costa nervisque densissime rufo-lanata. Inflorescentiae inde a basi dense rufo-lanatae.

Western Szech'uan: Mupin, woodlands, alt. 2600–3000 m., June 1908 (No. **3010**).

Named for the daughter of the author.

A remarkable and distinct species with the thick branches and the large, not numerous leaflets of all the preceding species from *S. expansa* to *S. Sargentiana*, but in other characters very different from them.

Here belongs possibly:

S. Wilsoniana? var. (b) nova Schneider in *Bull. Herb. Boissier*, sér. 2, VI. 313 (1906). Differt foliis 4–6-jugis ad 20 cm. longis, foliolis 5.5: 2.2 cm., obtusis, paullo minoribus, distantioribus, serraturis acutioribus, inflorescentiis laxioribus, petalis intus basi villosis, stylis 5, carpellis ut videtur omnino connatis.

To this "variety" may be referable Pratt's specimen No. 223 quoted by Schneider in his *Ill. Handb. Laubholzk.* I. 671 (1906) and figured under Fig. 367 k [2] and 369 q.

Sorbus Rehderiana Koehne, n. sp.[1]

Frutex v. arbor frutescens 3–8-metralis; rami 5–8 mm. diam., cinereo-nigricantes; gemmae 0.8–1.3 cm. longae, glabrae v. raro e squamarum marginibus ciliatae. Stipulae siccae, lanceolatae, 3–6 mm. longae, post anthesin deciduae, folia cum petiolo 1–2 cm. longo 10–15 cm. longa, 7–9(–10)-juga; rhachis alata, glabra, interstitiis 1–1.4 cm. longis; foliola inde a tertio v. quarto pari deorsum sursumque subdecrescentia, basi oblique rotundata v. hinc acuta, oblongo-lanceolata v. lanceolata, media 2.5–5 cm. longa, 0.8–1.3 cm. lata, cuspidato- v. mucronato-acuta, vix tertia v. saepe dimidia parte integra, superne serrulata, dentibus saepe subincurvis utrinsecus circiter 10–20, supra nitidula parcissime tenerrime villosa mox glabrata, margine ciliolata mox glabrata, subtus pallidiora costa subochracea, glaberrima v. in costa pubescentia, nervis utrinsecus circiter 10–18 reticuloque teneris supra subimpressis subtus saturatius coloratis, juvenilia rigidula adulta subcoriacea; epidermis supra laevis, subtus epapillosa irregulariter striata cellularum limitibus absconditis v. pro parte laevis cellulis manifestis. Inflorescentiae nunc ramulum longiorem nunc ramulos breves laterales crassos terminantes, 2.5–6.5 cm. latae, 3.5–5.5 cm. longae, planae v. convexae, satis densiflorae, parce fusco-villosae, demum plus minus glabratae; flores initio mensis Julii aperti; cupula glabra, sepala ciliata; petala circiter 5 mm. longa, e basi breviter late unguiculata, ovata, glabra, alba, staminibus duplo longiora; carpidia 5, inde a placenta segregata, apice villosiuscula, styli glabri. Fructus globosus, circiter 6–7 mm. diam., albidus v. carneus ("flesh-pink") v. roseo-purpurascens ("reddish-purple"), sepalis apice incurvis.

Western Szech'uan: Tachien-lu, woodlands, alt. 2600–3300 m., October 1908 (No. **1266**); south-east of Tachien-lu, woods, alt. 3000–3300 m., October 1910 (No. **4114**); south-east of Tachien-lu, woodlands, alt. 2600–3000 m., October 1910 (No. **4092**); north-east of

[1] Descriptio exclusa varietate.

Tachien-lu, thickets, alt. 3300–4000 m., July 7, 1908 (No. **3005**); west of Tachien-lu, woods, alt. 3300 m., October 1908 (No. **1281**).

A very remarkable and distinct species, allied to the preceding with equally dark branches, though quite different in the leaflets and inflorescence.

Sorbus Rehderiana, var. **grosseserrata** Koehne, n. var.

Gemmae apice rufo-sericeae. Folia cum petiolo 1.2–2.5 cm. longo 11.5–18 cm. longa, (7–)10–11-juga; foliola media 2.5–3.8 cm. longa, 0.8–1.3 cm. lata, multo profundius serrata quam in typo, etiam subtus parce longe villosa, adulta chartacea; epidermis subtus pro parte laevis, pro parte irregulariter striata. Fructus ad 11 mm. (?) diam., albus. **Cetera ut in typo.**

Western Szech'uan: west and near Wên-ch'uan Hsien, woodlands, alt. 2600–3000 m., September 1908 (No. **1035**, fruiting branches only; the flowering branches belong to *S. multijuga* Koehne).

Sorbus aperta Koehne, **n. sp.**

Arbor 8–13-metralis trunco 30–60 cm. diam.; rami ad 4 mm. diam., cinerei; gemmae 1 cm. longae, summo apice tantum lanatae. Stipulae caducae certe parvae; folia cum petiolo 2–4.5 cm. longo 10–18 cm. longa, (4–)5-juga; rhachis exalata, supra ad nodulos saepe pilis longissimis albidis conspersa ceterum glabra, interstitiis 1.3–2 cm. longis; foliola subaequalia v. inde a pari medio sursum deorsumque subdecrescentia, basi acuta v. hinc obtusiuscula, elliptica v. oblongo-elliptica, majora 3–5.5 cm. longa 1.2–1.7 cm. lata, acuta v. breviter cuspidata, tertia circiter parte integra superne angustissime serrata dentibus utrinsecus circiter 7–15 patulis, supra (autumno) glabra subtus pallide cano-viridia, costa ochracea, glabra, margine interdum basi parce ciliolata, nervis utrinsecus circiter 10–16 reticuloque supra haud v. parum subtus manifeste prominulis pallidis, chartacea; epidermis supra striis brevibus ramosis striata, subtus subpapilloso-reticulata papillis circa stomata prominulis apice scabris ceterum vix distinctis, cellularum limitibus absconditis. Inflorescentia suppetens ramulum lateralem abbreviatum 1 cm. longum terminans, 12 cm. lata, 8 cm. longa, subconvexa, laxissima pauciflora, glaberrima; sepala glabra; petala staminaque ignota; carpidia 5, fere tota connata, summo apice tantum segregata lanata. Fructus globosus circiter 6 mm. diam., albus, sepalis omnino inflexis.

Western Szech'uan: Min Valley, Mao-chou, alt. 2500 m., Octo-

ber 1910 (No. 4155). Northern Shensi: "Ta-sce-tsuen," September 18, 1897, *G. Giraldi* (No. 5129).

Giraldi's plant which was referred by Schneider doubtfully to *S. pekinensis* Koehne is represented also only by fruiting specimens, and I am at present unable to distinguish it from Wilson's plants upon which the above description is based. As Giraldi's specimen differs slightly from the type the following should be added to the description: Stipulae in ramis sterilibus paucissimae persistentes, herbaceae 5–8 mm. longae, paucidentatae; foliola dentibus paullo minoribus quam in typo, coriacea; epidermis supra laevis, subtus parum papillosa reticulato-striata. Inflorescentiae 6–12 cm. latae 7–10 cm. longae; carpidia 4 v. 5, tota connata.

It is rare that a species of Shensi occurs also in the provinces of Szech'uan or Hupeh. A picture of this tree will be found under No. 0332 of the collection of Wilson's photographs.

Sorbus laxiflora Koehne, n. sp.

Arbor 8–12-metralis, trunco 20–30 cm. diam.; rami ad 5 mm. diam., cinerei; gemmae (mense Julio) 4 mm. longae, glabrae exceptis squamarum marginibus tenerrime ciliatis. Stipulae siccae, parvae, lanceolatae, caducae; folia cum petiolo 1.5–3.5 cm. longo 10–16 cm. longa, (6–)7-juga; rhachis exalata v. apice angustissime alata, ad nodulos supra parce tenere rufo-villosa, ceterum glabra, interstitiis 1–1.3 cm. longis; foliola inde a pari tertio v. quarto deorsum decrescentia, sequentia aequalia v. suprema 2 paullo minora, basi hinc obtusa illinc subacuta, oblongo-elliptica, majora 2–4 cm. longa, 0.8–1.5 cm. lata, acuta v. breviter cuspidata, quarta v. tertia parte integra ceterum argute breviter serrata dentibus utrinsecus circiter 10–20 patulis v. superioribus subincurvis, supra glabra v. raro in costa pilis paucissimis conspersa, subtus pallide cano-viridia glabra, nervis utrinsecus circiter 15 reticuloque supra haud subtus sat prominulis pallidis, subchartacea; epidermis utrinque irregulariter ac pro parte reticulato-striata epapillosa cellularum limitibus absconditis. Inflorescentiae nunc ramulum elongatum nunc ramulos laterales abbreviatos circiter 1.5 cm. longos terminantes, 9–11 cm. latae, 8–9 cm. longae, laxissimae, pauciflorae, planae v. subconvexae, glabrae v. prope flores parcissime tenerrime villosae; cupula glaberrima, sepala apice sublanata; petala staminaque ignota; carpidia 5, inde a placenta segregata, apice lanata, styli glabri. Fructus immaturi tantum suppetentes.

Western Szech'uan: Ta-p'ao-shan, north-east of Tachien-lu, alt. 3000–3800 m., July 4, 1908 (No. 3008).

This very peculiar species forms with the two following a special group distinguished by its small stipules, medium-sized leaves with 4–7 pairs of medium-sized leaflets, and by a remarkably loose inflorescence.

Sorbus hupehensis Schneider in *Bull. Herb. Boissier*, sér. 2, VI. 316 (1906); *Ill. Handb. Laubholzk.* I, 680, fig. 374 r, 375 n (1906).

Ad descriptionem addenda: Rami 2.5–4 mm. diam. Folia cum petiolo 1.5–2.8 cm. longo 9.5–15 cm. longa, 7–8-juga; rhachis apice angustissime alata, interstitiis 0.5–1.3 cm. longis; foliola circiter a pari quarto v. quinto deorsum decrescentia pari infimo multo minore, superiora subaequalia, tertia v. duabus tertiis partibus integra ceterum argute breviter serrata dentibus utrinsecus circiter 2–14, subtus juxta costae basin albo-lanata imaque basi margine ciliata, nervis utrinsecus circiter 7–16 reticuloque supra parum impressis subtus prominulis reticulo pro parte paullo saturatius colorato, papyracea; epidermis supra striis brevibus subramosis obsita, subtus valide reticulato-papillosa papillis scabris. Inflorescentiae in ramis elongatis terminales 2.5–5 cm. latae, 5.5–7 cm. longae, laxae, convexae v. breviter conicae, glabrae v. hinc inde parce villosae; flores mense Junio aperti; petala 3 mm. longa, e basi late cuneato-unguiculata quadrato-ovata, glabra, staminibus fere duplo longiora; carpidia 4 v. 5 (sec. cl. Schneider 3 v. 4), semiconnata?, villosa.

Western Hupeh: July 1901 (Veitch Exped. No. 2082).

Sorbus hupehensis, var. **syncarpa** Koehne n. var.

Gemmae 0.6–0.7 cm. longae, squamarum tantum margine dense breviter ciliatae. Stipulae siccae, lanceolata 3–4 mm. longae, integrae v. apice herbaceae bifidae, pro parte usque ad mensem Septembrem persistentes. Folia 7.5–14 cm. longa, (6–)7-juga; foliola adulta 2.5–4.2 cm. longa, 0.7–1.2 cm. lata, subtus demum interdum glabrata, subchartacea; epidermis utrinque irregulariter ac pro parte reticulato-striata epapillosa cellularum limitibus absconditis. Inflorescentiae suppetentes secus ramum elongatum laterales, 4–5.5 cm. latae 7.5 cm. longae, ramulis pedicellisque parce villosis. Flores fine mensis Maji aperti; cupula glaberrima; sepala ciliata intusque villosa; petala 3 mm. longa, breviter lateque unguiculata, limbo e basi retusa late ovato, glabra, reflexa, staminibus duplo longiora; carpidia 5, summo apice tantum segregata, sub anthesi apice densissime villosa, demum glabra v. parce pilosa. Fructus immaturos tantum vidi; maturi (teste Wilson) albi.

Western Hupeh: Fang Hsien, thickets, alt. 2500 m., September 1907 (No. 320, in part.); Hsing-shan Hsien, Wen-tsao-shan, alt. 2300 m., May 31, 1907 (No. 320, in part).

Sorbus hupehensis seems related to *Sorbus Wattii* Koehne from Manipur, a well-marked species until recently confused with *S. foliolosa* Spach.

Sorbus Prattii Koehne, n. sp.

Frutex 2–4-metralis; rami 3–4 mm. diam., sordide cinerei v. demum nigro-fusci, nitiduli; gemmae ignotae. Stipulae siccae, lanceolatae, 3 mm. longae; folia cum petiolo 1–1.8 cm. longo 8–13 cm. longa, (9–) 10–12(–13)-juga; rhachis anguste alata, parce longe tenere lanata v. glabrata, interstitiis circiter 0.6–1 cm. longis; foliola inde a pari tertio v. quarto deorsum decrescentia, media aequalia, parum circiter 4 superiorum sensim sursum decrescentia, basi hinc obtusissima, illinc subacuta, media 1.5–2.7 cm. longa, 0.5–1 cm. lata, obtusa ac plerumque mucronata, basi v. tertia v. dimidia parte integra ceterum argute serrulata dentibus utrinsecus circiter 8–15, supra glabra, subtus cano-viridia, laxissime tenerrime albide, secus costam saepius dense rufo-lanata, nervis utrinsecus circiter 7–9 saepe obsoletis reticuloque tenerrimis subtus saturatius coloratis, papyracea; epidermis supra nunc laevis nunc dense striata, subtus reticulato-striata circa stomata v. ubique papillosa. Inflorescentiae pro parte ramum longiorem, pro parte ramulos laterales brevissimos v. vix 4 cm. longos terminantes, 4.5–7.5 cm. latae, 5.5–6.5 cm. longae, laxae pauciflorae, planae v. vix convexae, parce v. parcissime tenerrime albido- v. subrufo-lanata; flores mense Junio aperti; cupula glabra, sepala intus villosa; petala 5 mm. longa, late breviter cuneato-unguiculata, ovata, medio supra parce tenere lanato-barbata, staminibus duplo longiora; carpidia 4 v. 5, tota connata, apice glabra; styli basi v. tertia parte connati, basi pubescentes. Fructus ignotus.

Forsan formae duae distinguendae:

Sorbus Prattii, f. striata Koehne, n. f.

Rhachis inferne parce lanata v. glabra; foliola subtus etiam in costa laxe albide lanata; epidermis supra striata, subtus ubique manifeste papillosa.

Western Szech'uan: Tachien-lu, alt. 3000–4500 m., *A. Pratt* (No. 234).

Sorbus Prattii, f. laevis Koehne, n. f.

Rhachis magis lanata; foliola subtus in costa dense rufo-lanata; epidermis supra laevis, subtus nonnisi circa stomata multa papillosa.

Western Szech'uan: west of Tachien-lu, thickets, alt. 3300 m., June 1908 (No. 3006).

Schneider referred Pratt's specimens to the very different *Sorbus microphylla* (Wallich) Decaisne.

Sorbus munda Koehne, n. sp.

Frutex 3.3 m., v. arbor frutescens 3.3–6.6 m. alta; rami 2–2.5 mm. diam., nigricanti-fusci, nitiduli; gemmae 0.6–1 cm. longae, ovatae, supra medium parce rufopilosae. Stipulae herbaceae sed parvae circiter 5 mm. longae, ovatae v. rotundatae, paucidentatae, pleraeque persistentes; folia cum petiolo 1.3–2 cm. longo 7.5–13.5 cm. longa, 10–13-juga; rhachis superne anguste alata, glabra, interstitiis 0.5–0.8 cm. longis; foliola inde a pari tertio v. quarto deorsum, a pari septimo, octavo v. nono sursum subdecrescentia, basi obtusissima v. hinc subacuta, anguste oblonga, media 1.3–2 cm. longa, 0.4–0.7 cm. lata, obtusa v. acutiuscula saepe mucronata, basi v. tertia parte integra ceterum argutissime serrulata dentibus utrinsecus circiter 4–12, supremis conniventibus, glabra v. subtus in costa pilosiuscula v. tota facie laxe subrufo-arachnoidea, subtus pallide subcano-viridia, nervis utrinsecus circiter 4–7 saepe obsoletis reticuloque teneris subtus saturatius coloratis; epidermis supra laevis, subtus sat valide scabro-papillosa, inter papillas parce v. haud reticulato-striata. Inflorescentiae pleraeque ramulos brevissimos laterales, paucae ramum elongatum terminantes, 3.5–7 cm. latae, 4.5–7 cm. longae, laxae pauciflorae, ut videtur subconvexae, glabrae. Flores ignoti; carpidia 5, tota connata, glabra; styli liberi, an ima basi pubescentes? Fructus globosus, ad 7 mm. diam., albus, sepalis subconniventibus.

Distinguendae forsan formae duae:

Sorbus munda, f. a. **tatsienensis** Koehne, n. f.

Foliola 10–12-juga, subtus glabra v. in costa tantum pilosiuscula.

Western Szech'uan: Tachien-lu, woodlands, alt. 2300–3300 m., September 1908 (No. **991**).

Sorbus munda, f. b. **subarachnoidea** Koehne, n. f.

Foliola (10–)11–13-juga, subtus laxe subrufo-arachnoidea.

Western Szech'uan: Pan-lan-shan, west of Kuan Hsien, alt. 2600–3000 m., October 1910 (No. **4323**).

Sorbus aestivalis Koehne, n. sp.

Arbor tenuis ("thin tree") 6.6 m. alta; rami 3 mm. diam., nigricantes; gemmae ignotae. Stipulae herbaceae sed parvae, circiter 6 mm. longae, paucidentatae; folia cum petiolo 1.2–1.6 cm. longo

9.5–16 cm. longa, 14–16-juga; rhachis anguste alata, glabra, interstitiis 0.5–1 cm. longis; foliola inde a pari tertio circiter v. quarto deorsum, a pari octavo, nono v. decimo sensim sursum decrescentia, basi suboblique obtusissima, late lanceolata, inde a basi sensim rectilineatim subangustata, media 1.6–3.2 cm. longa, 0.5–0.8 cm. lata, mucronato-cuspidata, basi v. plerumque dimidia v. duabus tertiis partibus integra ceterum argute breviter serrulata dentibus utrinsecus circiter 3–14 supremis saepius conniventibus, supra glabra, subtus vix pallidiora subcano-viridia atque laxe tenere, secus costam densius subrufo-lanata nervis utrinsecus circiter 8–12 subtus parum prominulis, reticulo tenerrimo subtus saturatius colorato, papyracea; epidermis supra laevis, subtus validissime scabro-papillosa, inter papillas parce reticulato-striata. Inflorescentiae duae suppetentes ramulos brevissimos laterales terminantes, 7.5–9 cm. latae, 7–11 cm. longae, planae v. convexae, laxi- ac pauciflorae, glabrae; flores mense Julio aperti; cupula glabra; sepala apice ciliata; petala 3.5 mm. longa, basi late cuneato-unguiculata, ovata, glabra v. supra pilis paucissimis medio obsita, alba, staminibus triente v. duplo longiora; carpidia 5, tota connata, glabra; styli basi subconnati, glabri. Fructus ignotus.

Western Szech'uan: Wa-shan, alt. 2300–3200 m., July 1908 (No. **3002**).

Sorbus glomerulata Koehne, n. sp.

Frutex v. arbor parva; rami 2.5–3 mm. diam., cinerei v. fusco-cinerei; gemmae 0.5–0.6 cm. longae, acutae, glaberrimae. Stipulae pallidae, parvae, lanceolatae, apice saepe bifidae, in innovatione interdum herbaceae sed parvae, circiter 5 mm. longae, paucidentatae v. dissectae; folia cum petiolo 1.3–2 cm. longo 8.5–12 cm. longa, 11–14-juga; rhachis anguste alata, glabra, interstitiis 0.4–0.6 cm. longis; foliola inde a pari circiter tertio v. quarto deorsum decrescentia, cetera aequalia v. suprema parium circiter trium subdecrescentia, basi vix obliqua obtusa, oblongo-lanceolata marginibus parallelis, media 1.5–2.6 cm. longa, 0.4–0.8 cm. lata, obtusa v. mucronato-cuspidata, tertia v. duabus tertiis partibus integra ceterum brevissime argutissime serrulata dentibus utrinsecus circiter 3–9 porrectis, supremis raro subconniventibus, glabra v. subtus in costa inferne parce villosa, subtus paullo pallidiora cano-viridia, nervis utrinsecus circiter 8–12 reticuloque tenerrimis subtus saturatius coloratis demum pallidis, adulta subchartacea; epidermis supra striis brevibus subramosis obsita, subtus valide reticulato-papillosa. Inflorescentiae sup-

petentes ramulos breves v. brevissimos laterales terminantes, 6–8 cm. latae, 6–7 cm. longae, plerumque conico-convexae, e glomerulis parvis circiter 12–20 compositae, glabrae; flores mense Junio aperti; cupula sepalaque parva, glabra; petala circiter 3 mm. longa, longiuscule unguiculata, late ovata, glabra, alba, staminibus duplo longiora; carpidia 5, apice tantum segregata ac parce villosa, styli glabri. Fructus immaturi tantum noti, sepalis inflexis.

Western Hupeh: Changyang Hsien, woodlands, alt. 1600–2300 m., June and July 1907 (No. **3001**).

Sorbus Koehneana Schneider in *Bull. Herb. Boissier*, sér. 2, VI. 316 (1906); *Ill. Handb. Laubholzk.* I. 681, fig. 374o (1906).

Ad descriptionem addenda: Frutex 1.6–4 m. alt.; rami 1.5–5 mm. diam., cinerei v. nigricanti-cinerei; gemmae 0.6–0.9 cm. longae, supra medium pilis rufis plus minus hirto-sericeae v. glabratae. Stipulae herbaceae sed parvae, ad 6 v. 7 mm. longae, dentibus paucis incisae, paucae siccae lanceolatae; folia cum petiolo 1–2.8 cm. longo 8–15.5 cm. longa, 8–14-juga; rhachis anguste alata, laxe tenere lanata demum plerumque glabrata, interstitiis 0.5–1.2 cm. longis; foliola inde a pari tertio v. quarto deorsum sensimque sursum decrescentia, oblonga v. late lanceolata marginibus plerumque parallelis, 1.5–3 cm. longa, 0.5–0.8 cm. lata, obtusa saepeque mucronata, basi v. pere semi-integra, argute serrulata dentibus utrinsecus circiter 5–14, supremis conniventibus, supra glabra, margine tenere ciliata demum glabra, subtus pallide cano-viridia, in costa laxe tenere lanata, ceterum subglabra v. glabra, nervis utrinsecus circiter 9–10 saepe obsoletis reticuloque tenerrimis subtus saturatius coloratis, papyracea demum chartacea; epidermis supra striis brevibus irregularibus obsita v. raro (*Wilson* No. 320[a], *Giraldi* No. 1083) laevis, subtus epapillosa dense laxiusve reticulato-striata cellulis absconditis v. raro hinc inde laevis. Inflorescentiae pleraeque ramulos brevissimos laterales, paucissimae ramum elongatum terminantes, 3.5–6 cm., terminales rarae ad 11 cm. latae, 5–9.5 cm. longae, planae v. convexae, sublaxae, laxe tenere villosae demum glabratae; flores fine mensis Junii v. initio Julii (in provincia Shensi septentrionali medio Julio) aperti; cupula glabra v. basi pubescens; sepala intus villosa; petala circiter 5.5–6.5 mm. longa, late breviter cuneata, late ovata, glabra, alba, staminibus triente v. fere duplo longiora; carpidia 5, tota connata, apice glabra; styli basi vix v. fere semiconnati, basi pubescentes. Fructus globosus, circiter 7–8 mm. diam., albus, sepalis conniventibus.

Western Hupeh: Fang Hsien, thickets, alt. 2500 m., July 1907 (No. 320 [a]); without precise locality, *A. Henry* (No. 6766).

Southern Shensi: little mountain Hua-tro-pin, 10 km. from Mt. Tun-u-sse, 29 km. from Han-Kiun-fu, June 6, *G. Giraldi* (No. 1085). Northern Shensi: Tai-pei-shan, western slopes, alt. 2600 m., 1910, *W. Purdom* (No. 4 & 433); from the foot to the middle of Tai-pei-shan, August 1895, *G. Giraldi* (No. 1086), August 1896, *G. Giraldi* (No. 1084), 1899, *G. Giraldi* (No. 5253); Huan-tou-shan, July 24–26, 1894, *G. Giraldi* (No. 5118), and July 10, 1900, *G. Giraldi* (No. 7173); Hua-shan near Gniu-ju, August 25, 1895, *G. Giraldi* (No. 5119); Kian-shan in Lao-y-shan, August 4, 1897, *G. Giraldi* (No. 5120); Ngo-shan, September 1899, *G. Giraldi* (No. 5124); Ki-fon-shan, September 1899, *G. Giraldi* (No. 5123); environs of In-kia-po, August 1896, *G. Giraldi* (No. 1083).

Sorbus multijuga Koehne, n. sp.

Descriptio exclusa varietate: Frutex 2.6–4 m. v. arbor frutescens ad 7 m. alta; rami 2–3 mm. diam., cinerei; gemmae 0.6 cm. longae, crasse ovatae, glabrae. Stipulae herbaceae sed parvae, dentibus paucis incisae v. dissectae; folia cum petiolo 1.3–2.2 cm. longo 15–20.5 cm. longa, 17–21-juga; rhachis anguste alata, subtus ochraceo-pubescens parceque rufo-hirta demum glabrata, interstitiis 0.6–0.8 cm. longis; foliola circiter a pari quarto v. quinto deorsum, a pari un-v. duodecimo sensim sursum decrescentia, basi obtusissima v. hinc subacuta, oblongo-lanceolata v. lanceolata marginibus parallelis, media 1.5–3.2 cm. longa, 0.5–1 cm. lata, mucronato-cuspidata, basi integra ceterum argutissime serrata dentibus pro parte duplicatis, primariis utrinsecus circiter 6–16, incurvis, supra glabra, subtus pallide viridia parce tenere longe, in costa ochracea densius villosa demum glabrata, nervis utrinsecus circiter 8–10 reticuloque tenerrimis subtus saturatius coloratis, membranacea demum vix papyracea; epidermis utrinque laevis v. subtus hinc inde irregulariter striata. Inflorescentiae duae suppetentes ramulos brevissimos laterales terminantes, 4–5 cm. latae, 5–6 cm. longae, subconvexae, laxi- ac pauciflorae, ochraceo-pubescentes, demum glabratae; flores mense Junio aperti; cupula glabra v. parce pubescens, sepala intus villosiuscula; petala circiter 4.5 mm. longa, latissime cuneato-unguiculata, late ovata, glabra, alba, staminibus circiter triente longiora; carpidia 5, tota connata, glabra; styli basi connati, glabri. Fructus globosus, circiter 9 mm. diam., albus, sepalis suberectis.

Western Szech'uan: west and near Wên-ch'uan Hsien, woodlands, alt. 2300–3000 m., June 1908 (No. **1035**; flowering branches, type; the fruiting branches belong to *S. Rehderiana*, var. *grosseserrata*); same locality, alt. 3000–3300 m., October 1910 (No. **4198**).

Sorbus multijuga, var. **microdonta** Koehne, n. var.

Frutex 3–4-metralis; rami 2–3.5 mm. diam., nigricanti-cinerei v. cinerei; gemmae 0.9 mm. longae, parce albido-sericeae, apice dense rufo-sericeae. Stipulae nonnullae, simplices, lanceolatae; folia cum petiolo 1–2 cm. longo 9–15 cm. longa, (12–)16–20-juga; foliola media 1.2–2.2 cm. longa, 0.3–0.6 cm. lata, basi integra, ceterum argute serrulata dentibus dimidio minoribus quam in typo haud v. vix incurvis, subtus glabra v. in costa pilorum residuis obsita. Inflorescentiae 4.5–7 cm. latae, 6–7 cm. longae; flores ignoti; carpidia 3–5. Fructus globosus, circiter 5–7 mm. diam., albus, sepalis subconniventibus. Cetera ut in typo.

Western Szech'uan: west and near Wên-ch'uan-Hsien, alt. 2300–2600 m., September 1908 (No. **864** [a]); Mupin, woodlands, alt. 2000–2500 m., October 1908 (No. **864**, in part; part of the fruiting specimens and the flowering specimens belong to *S. unguiculata* Koehne).

Sorbus pogonopetala Koehne, n. sp.

Frutex 3–5 m. altus; rami 2–3 mm. diam., nigricanti-cinerei; gemmae ignotae. Stipulae pleraeque herbaceae parvae, lineares v. lanceolatae interdum bifidae, nonnullae siccae lineares interdum bifidae; folia cum petiolo 1.2–1.8 cm. longo 6.5–11.5 cm. longa, (9–)10–11-juga; rhachis anguste alata, ut petiolus supra nigro-purpurea, versus apicem viridis, subtus pallida ac laxe longe tenere villosa, interstitiis 0.5–1 cm. longis; foliola inde a pari tertio v. quarto deorsum decrescentia, cetera aequalia v. paria suprema tria decrescentia, basi hinc obtusiuscula illinc acuta, latius angustiusve oblonga, media 1.2–2.2 cm. longa, 0.4–0.7 cm. lata, mucronato-cuspidata, basi integra ceterum argutissime serrulata dentibus utrinsecus circiter 4–12 subincurvis, supra glabra, margine tenere ciliata, subtus pallide cano-viridia laxe tenere villosa, nervis utrinsecus circiter 5–10 reticuloque tenerrimis subtus saturatius coloratis, papyracea; epidermis supra laevis, subtus pro parte laevis pro parte tenere irregulariter striata. Inflorescentiarum suppetentium altera ramum elongatum altera ramulum brevissimum lateralem terminans, 3.5–6 cm. latae, 5.5–6 cm. longae, subconvexae,

laxi- ac pauciflorae, parce tenere villosae, axibus purpurascentibus; flores fine mensis Junii aperti; cupula glabra, sepala intus villosa; petala cum unguiculo fere 1 mm. longo lato 5 mm. longa, late ovata, in laminae basi supra lanato-barbata, alba, staminibus circiter triente longiora; carpidia 5, tota connata, glabra; styli fere semiconnati, glabri. Fructus ignotus.

Western Szech'uan: Pan-lan-shan, west of Kuan Hsien, woods, alt. 3800 m., June 24, 1908 (No. 3003).

Sorbus pogonopetala differs from all other Chinese species with numerous small leaflets in its strongly bearded petals; it is also remarkable in the purplish black color of its petioles and rhachis.

Sorbus unguiculata Koehne, n. sp.

Frutex 2–5-metralis; rami 2–4 mm. diam., cinerei v. fusco-cinerei; gemmae 0.4–0.5 cm. longae, subsericeae v. glabratae. Stipulae herbaceae sed parvae, ad 5 mm. longae, dentibus paucis incisae v. dissectae, raro integrae; folia cum petiolo 0.5–1.8 cm. longo 5.5–13.5 cm. longa, (9–)12–16-juga; rhachis anguste alata, subtus plus minus rufo-pubescens demum glabrata, interstitiis 0.5–0.8 cm. longis; foliola inde a tertio v. quarto pari deorsum sensimque v. vix sursum decrescentia, basi subito contracta v. hinc obtusa illinc subacuta, oblonga v. ovalia, in innovationibus saepe angustius oblonga marginibus subparallelis, media 1–1.8 cm. longa, 0.4–0.7 cm. lata, obtusa saepeque mucronato-cuspidata, rarius acuta, basi v. tertia parte integra ceterum argute serrulata dentibus utrinsecus circiter 4–13, supremis conniventibus, supra glabra, subtus paullo pallidiora glabra v. plerumque parce, in costa densius rufo-pubescentia v. villosiuscula demum glabrata, nervis utrinsecus circiter 6–8 saepe obsoletis reticuloque tenerrimis subtus saturatius coloratis, papyracea; epidermis utrinque laevis v. subtus striis rarissimis obsita. Inflorescentiae suppetentes omnes ramulos brevissimos laterales terminantes, 2.5–5.5 cm. latae, 3.5–5 cm. longae, planae v. subconvexae, sublaxiflorae, parcissime densiusve pubescentes v. villosiusculae demum glabratae; flores mense Junio aperti; cupula parce v. densiuscule pubescens, sepala extus glabra v. pubescentia, intus villosiuscula; petala cum unguiculo limbum dimidium aequante lato circiter 5–5.5 mm. longa, trapezoideo-rotundata, glabra, alba, staminibus triente longiora; carpidia 5 v. raro 4, tota connata, glabra, styli basi connati, glabri. Fructus globosus, circiter 6–9 mm. diam., albus v. pallide purpurascens, sepalis conniventibus.

Western Szech'uan: Tachien-lu, thickets, alt. 2600–3300 m.,

June 1908 (No. **3004**); same locality, upland thickets, alt. 3000–3600 m., October 1910 (No. **4119**); south-east of Tachien-lu, woodlands, alt. 2600–3300 m., October 1908 (No. **874** [a]); Mupin, woodlands, alt. 2000–2800 m., June and October 1908 (No. **864**, flowering branches; the fruiting branches belong partly here, partly to *S. multijuga microdonta* Koehne); Ching-chi Hsien, alt. 3300 m., September 18, 1908 (No. **941**; fruit pale purple).[1]

Sorbus setschwanensis (Schneider) Koehne, n. sp.

Sorbus Vilmorini, var. *setschwanensis* Schneider in *Bull. Herb. Boissier*, sér. 2, VI. 318 (1906); *Ill. Handb. Laubholzk.* I. 683, fig. 374 t, 375 s–t (1906).

Frutex 2–5-metralis; rami 1.5–4 mm. diam., cinerei v. nigricantes; gemmae 0.6–0.8 cm. longae, glabrae v. paucae rufo-sericeae. Stipulae siccae v. paucae herbaceae, parvae, 2–3 mm. longae, apice saepe bifidae; folia cum petiolo 0.8–1.4 cm. longo 4.5–11 cm. longa, (10–) 12–17-juga; rhachis anguste alata, glabra, interstitiis 0.2–0.6 cm. longis; foliola inde a pari tertio v. quarto deorsum sensimque sursum decrescentia (quare folia triangulari-fastigata [2]), basi obtusa v. hinc acuta, anguste oblonga, media 0.5–1.3 cm. longa, 0.2–0.4 cm. lata, obtusa v. acutiuscula, basi v. interdum dimidia parte integra ceterum densius remotiusve minutim serrulata, dentibus utrinsecus circiter 2–11, supremis conniventibus, glabra v. interdum tenere ciliata, subtus cano-viridia, nervis obsoletis reticuloque tenerrimis subtus saturatius coloratis, papyracea demum chartacea; epidermis utrinque laevis v. subtus striis paucissimis conspersa. Inflorescentiae suppetentes omnes ramulos laterales brevissimos v. breves terminantes, 2.5–6 cm. latae, 4–6.5 cm. longae, planae v. subconvexae, laxi- ac pauciflorae, glabrae; flores fine mensis Junii aperti; cupula glabra, sepala apice ciliata; petala cum unguiculo dimidium limbum aequante circiter 4.5 mm. longa, ovata, glabra, alba, staminibus duplo longiora; carpidia 2–4, tota connata, glabra; styli basi connati v. fere liberi, glabri. Fructus globosus, circiter 6–6.5 cm. diam., albus v. pallide purpurascens, sepalis inflexis.

Western Szech'uan: Niu-tou-shan, west of Kuan Hsien, woodlands, alt. 2600–3000 m., June 30, 1908 (No. **3007**, type); Ching-chi Hsien, woodlands, alt. 2800 m., September 15, 1908 (No. **874**); Wa-

[1] No. 941 of which only a single specimen had been collected has not been seen by the author of this paper, but it apparently belongs to *S. unguiculata*. — Ed.

[2] The usual spelling *fastigiata* is incorrect, as it is derived from the verb *fastigare*.

shan, woodlands, alt. 2300–9000 m., October 1908 (No. 864[b]); without locality, 1890, *A. Henry* (No. 8975).

The smallest leaved of all the species of Sorbus. The greatest contrast to it is found in *S. Sargentiana* Koehne which has the leaves up to 28 cm. and the leaflets up to 13.5 cm. long.

SORBORUM CHINENSIUM CONSPECTUS ANALYTICUS.

Though I have studied almost all the Asiatic species of Sorbus in order to understand the Chinese species, and though I know also the European and North American species, I find it impossible to divide the genus into well characterized sections. There are, however, groups of allied species which stand out more or less clearly, but I have not succeeded in characterizing these groups distinctly or in making them include other than Chinese species, because the characters are too variously distributed, and of many species important characters are still unknown owing to the want of sufficient material. To arrange, however, at least for the present paper, the Chinese species in a way to indicate their affinities, I have distinguished certain groups without naming them. To give them now definite names would be unwise, as this would seem to indicate that species other than Chinese could be included in the arrangement without changing the characterization of the groups. This, however, is not possible.

Stipulae saltem supremae intra inflorescentiae basin insigniter dilatatae, herbaceae. Inflorescentiae magnae, 9–20 cm. latae (in *S. discolore* diametro ignoto), floribus numerosissimis, in *S. discolore* tantum paucis. Fructus intense rubro-aurantiaci v. miniati, in *S. pekinensi* pallidi (in *S. discolore, Wilsoniana, Giraldiana, pluripinnata* colore ignoto); carpidia apice villosa v. lanata.

Folia ad summum 8-juga; petioli 2.5–6.5 cm. longi; rhachis exalata, interstitiis 1.3–4 cm., nonnisi in *S. expansa* 0.8–1.4 cm. longis; foliola media majuscula v. maxima (3.5–13.5 cm. longa, 0.8–3.9 cm. lata), acutissima simul apice angustata v. subacuminata; epidermis subtus papillosa v. raro nonnisi reticulato-striata. Inflorescentiae pleraeque ut videtur e rami longioris apice ortae. Carpidia 3 v. 4, inde a placenta segregata, nonnisi in *S. Giraldiana* semiconnata . . . . . 1. *Group.*

Folia 10–13-juga; petioli 1.5–2.2 cm. longi; rhachis superne angustissime v. vix alata, interstitiis 0.5–1 cm. longis; foliola media majuscula v. parvula (1.5–4 cm. longa, 0.5–0.8 cm. lata), obtusa v. acuta, marginibus insigniter parallelis; epidermis subtus valide reticulato-papillosa. Inflorescentiae saepius ut videtur e ramulorum lateralium abbreviatorum apice ortae. Carpidia 3, 4, 5, inde a placenta segregata v. tota fere connata, apice lanata . . . . . 2. *Group.*

Stipulae parvae, herbaceae paucidentatae v. siccae lanceolatae linearesve. Inflorescentiae plerumque laxiusculae v. laxissimae, interdum vero densiflorae v. e glomerulis densifloris compositae. Fructus verisimiliter semper albi v. rosei v. pallide purpurascentes (sed colore adhuc ignoto in *S. tapashana, Helenae, laxiflora, Prattii, aestivali, glomerulata, pogonopetala*).

Rami[1] crassi, 5–8 mm. diam. Stipulae siccae, angustae; folia 3–11-juga; rhachis plerumque manifeste alata, interstitiis 1–2.5 cm. longis; foliola media 2.5–9.5 cm. longa 0.8–3.5 cm. lata, acutissima v. breviter cuspidata; epidermis

[1] Meaning such branches as are found on herbarium specimens either with flowers or fruits.

subtus reticulato-striata v. raro sublaevis epapillosa, rarius circa stomata obsolete papillosa. Inflorescentiae pleraeque ut videtur e ramuli longioris apice ortae, nonnisi in *S. Rehderiana* multae e ramulis lateralibus abbreviatis, 2.5–14 cm. latae, plerumque densiflorae v. e glomerulis densifloris compositae. Carpidia 5, inde a placenta segregata v. tota connata, apice lanata v. rarius glabra . . . . . 3. *Group.*

Rami tenuiores, 2.5–4 mm. diam. Stipulae rarius siccae, saepius herbaceae. Inflorescentiae multae v. pleraeque ut videtur e ramulorum lateralium abbreviatorum apice ortae.

Folia 4–8-juga; rhachis exalata v. obsolete alata, interstitiis 0.5–2 cm. longis. Carpidia apice lanata. Foliola media 2–5.5 cm. longa, 0.7–1.7 cm. lata, brevissime cuspidata. Carpidia 4 v. 5, inde a placenta segregata v. tota fere connata . . . . . 4. *Group.*

Folia 9–21-juga (intermixtis raro paucissimis 8-jugis); rhachis semper anguste sed distincte alata, interstitiis 0.5–1.2 cm. longis. Carpidia apice glabra (nonnisi in *S. glomerulata* lanata), sed styli basi saepe pubescentes. Foliola media 0.5–3.2 cm. longa, 0.2–1 cm. lata, plus minus obtusa saepeque mucronato-cuspidata. Petala quoad nota, staminibus triente v. duplo longiora (in *S. munda* adhuc ignota). Carpidia 5 v. raro 2, 3, 4, semper tota connata, styli liberi v. plus minus connati . . . . . 5. *Group.*

1. Group.

Inflorescentia pauciflora. Folia 4–6-juga, coriacea (Species nimis incomplete nota). 1. *S. discolor.*

Inflorescentia multiflora.

Rami tenuiores, 2.5–4.5 mm. diam. Epidermis supra laevis subtus obsolete v. manifeste papillosa. Petala supra plus minus barbata (in *S. Giraldiana* vero ignota).

Foliola 5–8-, pleraque 6–7-juga, nunquam subtus juxta costam tantum lanata. Carpidia inde a placenta segregata.

Inflorescentia glabra, sublaxiflora; cupula glabra; petala staminibus duplo longiora 6 mm. longa. Fructus roseo-albicantes v. colore salmoneo pallido. Folia cum petiolo 3–6 cm. longo 13–23 cm. longa; rhachis cito glabrata, interstitiis 1.3–3 cm. longis; foliola lanceolata (3.5–6.5 cm.: 0.8–1.6 cm.), in ramis florentibus glabra; epidermis subtus obscure papillosa. 2. *S. pekinensis.*

Inflorescentia dense lanata, densiflora; cupula lanata; petala staminibus aequilonga, 4.5 mm. longa. Fructus miniati. Folia cum petiolo 2.5–4 cm. longo 10–20 cm. longa; rhachis lanata, interstitiis 1.3–2 cm. longis; foliola oblonga (3.5–5.5 cm.: 1.4–1.8 cm.), supra initio parce pilosa subtus laxe v. dense lanata; epidermis subtus brevissime papillosa. 3. *S. pohuashanensis.*

Foliola 4-juga, subtus nonnisi juxta costae partem inferiorem insigniter albolanata, costa ipsa glabra. Carpidia semiconnata. Folia cum petiolo 3–4.8 cm. longo 15–18.5 cm. longa; rhachis initio parce sericea, interstitiis 1.7–2.5 cm. longis; epidermis subtus valide papillosa. 4. *S. Giraldiana.*

Rami crassi, 5–8 mm. diam. Petala quoad nota glabra v. subglabra, staminibus aequilonga v. subbreviora (in *S. expansa* et *S. Conradinae* ignota).

Foliola subtus tomento persistente haud vestita, 6–7-iuga, dentibus utrinsecus circiter 6–20.

Rhachis atque inflorescentia initio insigniter albo-lanata; foliola late lanceolata v. lanceolata-elliptica minora (3.5–6 cm.: 0.9–1.3 cm.), subtus lanata v. costa nervisque exceptis plus minus glabrata. Folia cum petiolo 2.5–5 cm. longo 9.5–18.5 cm. longa; rhachidis interstitia 0.8–1.4 (–2) cm. longa; epidermis utrinque striata epapillosa . . 5. *S. expansa.*

Rhachis atque inflorescentia parcius albo-lanata; foliola oblonga v. oblongo-lanceolata majora (6–8.3 cm.: 2–2.8 cm.), subtus nonnisi in costa plus minus lanato-pubescentia. Folia cum petiolo 4.5–6.5 cm. longo 22–25 cm. longa; interstitia 1.8–2.3 cm. longa; epidermis supra laevis, subtus reticulato-striata ac circa stomata interdum obscure papillosa.
6. *S. Wilsoniana.*

Foliola subtus tomento denso persistente obtecta, v. quando glabriora simul dentibus utrinsecus circiter 28–52. Inflorescentia juvenilis (verisimiliter etiam in *S. Conradinae*) albo-tomentosa.

Foliola 5–6-juga, subtus tomento persistente obtecta, dentibus utrinsecus circiter 8–22, ad summum 9 cm. longa; epidermis subtus summopere papillosa.

Foliola angustiora (5–9 cm.: 1.7–2.8 cm.), subtus albicanti-viridia, nervis demum supra haud impressis subtus prominulis; folia cum petiolo 4–5 cm. longo 15–26 cm. longa; interstitia 1.8–4 cm. longa.
7. *S. Esserteauiana.*

Foliola latiora (6–8 cm.: 2–3.2 cm.), subtus nivea, nervis demum supra argute impressis subtus valde prominentibus; folia cum petiolo 2.5–6 cm. longo 16–27 cm. longa; interstitia 2–2.7 cm. longa.
8. *S. Conradinae.*

Foliola (3–)4–5-juga, subtus in costa nervisque densius ceterum parce lanata demum glabrata, dentibus utrinsecus circiter 28–52, maxima (8.5–13.5 cm.: 2.6–3.9 cm.); epidermis subtus valide papillosa; folia cum petiolo 4–7 cm. longo 13–28 cm. longa; interstitia 2.5–3.2 cm. longa.
9. *S. Sargentiana.*

2. Group.

Foliola 12–13-juga, majora (2.2–4 cm.: 0.5–0.8 cm.), subtus albida arachnoidea; interstitia 1 cm. longa. Inflorescentia 13–14 cm. lata, tomentosa; carpidia 3 v. 4, tota fere connata . . . . . 10. *S. scalaris.*

Foliola 10–12-juga, minora (1.5–2.5 cm.: 0.5–0.8 cm.), subtus cinerascentia lanata; interstitia 0.5–0.7 cm. longa. Inflorescentia 9 cm. lata, verisimiliter initio tomentosa; carpidia 4 v. 5, inde a placenta segregata . . . 11. *S. pluripinnata.*

3. Group.

Folia 3–4-juga. Carpidia tota connata, apice glabra, sed styli basi pubescentes; folia cum petiolo 2.5–5 cm. longo 13–20 cm. longa; interstitia 2–2.5 cm. longa; foliola majora (5–9.5 cm.: 2–3.5 cm.), dentibus utrinsecus circiter 30–50; epidermis subtus paucistriata. Inflorescentia 8–14 cm. lata, parce pilosa; petala 4 mm. longa, glabra, staminibus duplo longiora. . . . 12. *S. Helenae.*

Folia 5–11-juga. Carpidia inde a placenta segregata, apice lanata v. villosa; styli saepe glabri. Foliola minora (ad summum 6 cm. longa).

Rhacheos interstitia 1.5–2.5 cm. longa; foliola majora (5–6 cm.: 1.5–2.2 cm.), dentibus utrinsecus circiter 25–35, glabra; epidermis subtus reticulato-striata. Inflorescentia major (6–10 cm. lata), plus minus albo-lanata. Folia 5–8-juga, cum petiolo 1.4–3 cm. longo 13–22 cm. longa . . . . . 13. *S. tapashana.*

Rhacheos interstitia 1–1.4 cm. longa; foliola minora (2.5–5 cm.: 0.8–1.3 cm.), dentibus utrinsecus circiter 10–20, supra parce pilosa subtus glabra v. parce pilosa; epidermis subtus pro parte laevis pro parte irregulariter striata. Inflorescentia minor (2.5–6.5 cm. lata), initio parce fusco-villosa. Folia plerumque 7–9-, raro ad 11-juga, cum petiolo 1–2(–2.5) cm. longo 10–15(–18) cm. longa . . . . . **14. *S. Rehderiana.***

4. Group.

Folia 4–5-juga; rhachis exalata, interstitia 1.3–2 cm. longa; folia cum petiolo 2–4.5 cm. longo 10–18 cm. longa; foliola majora (3–5.5 cm.: 1.2–1.7 cm.), glabra; epidermis subtus reticulato-striata, circa stomata obscure papillosa. Inflorescentia 12 cm. lata, glabra; carpidia 5 . . . . . 15. *S. aperta.*

Folia 6–8-juga; rhachis vix v. angustissime alata, interstitia 0.5–1.3 cm. longa; foliola minora (ad summum 4.2 cm. longa).

Foliola subtus glabra; epidermis subtus irregulariter striata epapillosa. Inflorescentia 9–11 cm. lata; carpidia 5, inde a placenta segregata. Folia cum petiolo 2.5–3.5 cm. longo 10–16 cm. longa; interstitia 1–1.3 cm. longa; foliola 2–4 cm. longa, 0.8–1.5 cm. lata . . . . . 16. *S. laxiflora.*

Foliola subtus juxta costae basin albo-lanata; epidermis subtus circa stomata v. ubique papillosa. Inflorescentia 2.5–5.5 cm. lata; carpidia 4 v. 5, semiconnata v. tota fere connata. Folia cum petiolo 1.5–2.8 cm. longo 7.5–15 cm. longa; interstitia 0.5–1.3 cm. longa; foliola 2–4.2 cm. longa, 0.7–1.3 cm. lata. **17. *S. hupehensis.***

5. Group.[1]

Epidermis foliolarum subtus ubique, rarissime nonnisi circa stomata, manifeste papillosa.

Flores haud manifeste glomerulati.

Folia 9–13-juga. Carpidia glabra, styli basi pubescentes.

Stipula siccae; rhachis laxe villosa; foliola paullo majora (1.5–2.7 cm.: 0.5–1 cm.), pleraque tertia v. dimidia parte integra superne serrulata. Inflorescentia parce subochraceo-villosa. Folii rhachidis interstitia 0.6–1 cm. longa; foliola subtus parce, in costa densius ochraceo-villosa. Petala 5 mm. longa, medio limbo parce barbata. Carpidia 4 v. 5. **18. *S. Prattii.***

Stipulae herbaceae parvae; rhachis glabra; foliola minora (1.3–2 cm.: 0.4–0.7 cm.), basi tantum integra, argutius et paullo profundius serrata. Inflorescentia fructifera glabra. Folii rhachidis interstitia 0.5–0.8 cm. longa; foliola subtus saltem in costa parce albido-lanata v. tota facie subochraceo-arachnoidea. Petala ignota. Carpidia 5 . . 19. *S. munda.*

Folia 14–16-juga. Carpidia 5, glabra; styli glabri. Folii rhachis glabra; interstitia 0.5–1 cm. longa; foliola inde a basi sensim angustata (1.6–3.2 cm.: 0.5–0.8 cm.), pleraque ad v. ultra medium integra superne minutim serrulata, subtus laxe secus costam densius subrufo-lanata. Inflorescentia glabra; petala 3.5 mm. longa, glabra v. vix barbulata. Carpidia 5, glabra; styli glabri . . . . . 20. *S. aestivalis.*

Flores in glomerulis parvis conferti, inflorescentia e glomerulis circiter 12–20 composita. Folia 11–14-juga; rhachis glabra; interstitia 0.4–0.6 cm. longa; foliola (1.5–2.6 cm.: 0.4–0.8 cm.) circiter supra medium v. apice tantum

[1] To determine quickly the species of this group it is important to examine the epidermis of the leaves with the microscope.

serrulata, subtus glabra v. nonnisi in costa parce pilosa. Inflorescentia glabra. Petala 3 mm. longa, glabra. Carpidia 5, apice villosa.
21. *S. glomerulata.*

Epidermis subtus epapillosa. Carpidia apice glabra, sed styli saepe basi pubescentes.

Petalorum unguiculus brevis v. brevissimus, late cuneatus.

Petala glabra. Foliola subtus in costa tantum pilosa.

Folia 8–14-juga, cum petiolo 8–16 cm. longa; epidermis utrinque striata v. rarissime supra laevis subtus hinc inde laevis. Styli basi pubescentes.

Carpidia 5. Fructus albus. Petala 5.5–6 mm. longa. Rhachis parce albido-pilosa; foliola basi obtusissima. Inflorescentia laxe tenere albido-lanata; cupula glabra v. basi parce pilosa; styli plus minus connati.
22. *S. Koehneana.*

Carpidia 3 v. 4. Fructus roseus. Petala 3.5 mm. longa. Rhachis subtus rufo-pilosa; foliola inferiora utrinque, superiora hinc acuta v. cuneata. Inflorescentia rufo-pilosa; cupula rufo-hirta; styli fere semiconnati.
23. *S. Vilmorini.*

Folia 16–21-juga, cum petiolo (9–)15–20.5 cm. longa; epidermis utrinque laevis v. subtus hinc inde parce striata. Styli glabri. Folii rhachis subtus pubescens; interstitia 0.6–0.8 cm. longa; foliola (1.2–3.2 cm.: 0.3–1 cm.) subtus in costa villosa. Inflorescentia laxe villosa; petala 5 mm. longa; carpidia 3–5. . . . . 24. *S. multijuga.*

Petala medio limbo lanato-barbata. Folia 9–11-juga, cum petiolo 6.5–11.5 cm. longa; rhachis inferne nigro-purpurea, subtus parce pilosa; interstitia 0.5–1 cm. longa; foliola (1.5–2.2 cm.: 0.4–0.7 cm.) subtus parce pilosa; epidermis utrinque laevis v. subtus hinc inde parce striata. Inflorescentia laxe villosa; petala 5 mm. longa, carpidia 5, glabra, styli glabri.
25. *S. pogonopetala.*

Petalorum glabrorum unguiculus dimidio limbo aequilongus, angustus. Folia (9–)12–17-juga; epidermis utrinque laevis v. subtus hinc inde parce striata. Carpidia glabra; styli glabri.

Foliola majora (1–1.8 cm.: 0.4–0.7 cm.). Inflorescentia cupulaque plus minus pilosae. Carpidia 5, raro 4. Folia cum petiolo 5.5–13.5 cm. longa; rhachis subtus pilosa; interstitia 0.5–0.8 cm. longa; foliola subtus glabra v. parce pilosa; petala 5–5.5 mm. longa . . . . . 26. *S. unguiculata.*

Foliola minora (0.5–1.3 cm.: 0.2–0.4 cm.). Inflorescentia cupulaque glabrae. Carpidia 2–4. Folia cum petiolo 4.5–11 cm. longa; rhachis glabra; interstitia 0.2–0.6 cm. longa; foliola interdum ciliata ceterum glabra; petala 4.5 mm. longa . . . . . 27. *S. setschwanensis.*

ENUMERATIO SORBORUM CHINENSIUM.

1. Group.[1]

1. **Sorbus discolor** Maximowicz in *Mém. Sav. Étr. Acad. Sci. St. Pétersbourg*, IX. 103 (*Prim. Fl. Amur.*) (1859). — Ruprecht in *Mém. Acad. Sci. St. Pétersbourg*, XIV.

[1] Besides the European and North American species none of the following Asiatic species can be referred to any of the groups here distinguished: *Sorbus altaica* Koehne, *S. sibirica* Hedlund, *S. commixta* Hedlund, *S. pruinosa* Koehne, *S. serotina* Koehne, *S. reflexipetala* Koehne, *S. heterodonta* Koehne, *S. Boissieri* Schneider and *S. parviflora* Hedlund.

No. IV. 46 (1870). — Hedlund in *Kongl. Svenska Vetensk.-Akad. Handl.* XXXV. 37 (*Monogr. Sorbus*) (1901). — Schneider, *Ill. Handb. Laubholzk.* I. 669, Fig. 367 g (pro parte) (1906).

Northern China.

The reasons which have led me not to unite this critical species with the following, as Schneider proposes, I have fully explained in *Mitt. Deutsch. Dendr. Ges.* XI. 56 (1906). Ruprecht compares it with his *S. thianschanica* and it is not impossible that it is more closely allied to that species than to *S. pekinensis*. At any rate there does not seem to be sufficient reason yet for considering *S. pekinensis* as a synonym to *S. discolor*.

2. **Sorbus pekinensis** Koehne in *Gartenfl.* L. 406 (1901); in *Mitt. Deutsch. Dendr. Ges.* XV. 56 (1906).

Sorbus discolor Schneider, *Ill. Handb. Laubholzk.* I. 669, fig. 366 l, m, 367 g (pro parte) (1906).

Chili: about Peking.

Known to me only from specimens raised in European gardens, from seed sent by Bretschneider.

3. **Sorbus pohuashanensis** (Hance) Hedlund, in *Kongl. Svenska Vetensk.-Akad. Handl.* XXXV. 33 (*Monogr. Sorbus*) (1901). — Rehder in *Mitt. Deutsch. Dendr. Ges.* X. 116 (1901). — Schneider, *Ill. Handb. Laubholzk.* I. 672 (1906).

Pyrus pohuashanensis Hance in *Journ. Bot.* XIII. 132 (1875).

Chili: Po-hua-shan, near the summit, 1874, *Bretschneider* (No. 3), 1881, *Bretschneider* (No. 1155); Wei-chang, May 31, 1909, *W. Purdom* (Nos. 18 & 47).

I have not seen the specimens collected by *Bretschneider;* those of *Purdom* consist of sterile twigs. — Cultivated in the Arnold Arboretum and in Europe.

4. **Sorbus Giraldiana** Schneider, *Ill. Handb. Laubholzk.* I. 672, Fig. 369 a (1906).

Northern Shensi: Ngo-shan, July 1999, *G. Giraldi* (No. 5128).

5. **Sorbus expansa** Koehne. See p. 457.

6. **Sorbus Wilsoniana** Schneider. See p. 458.

7. **Sorbus Esserteauiana** Koehne. See p. 459.

8. **Sorbus Conradinae** Koehne. See p. 460.

9. **Sorbus Sargentiana** Koehne. See p. 461.

2. Group.[1]

10. **Sorbus scalaris** Koehne. See p. 462.

11. **Sorbus pluripinnata** (Schneider) Koehne.

Sorbus foliolosa, var. *pluripinnata* Schneider in *Bull. Herb. Boissier*, sér. 2, VI. 315 (1906); *Ill. Handb. Laubholzk.* I. 680, fig. 374 e′ (1906).

Szech'uan, *A. Henry* (No. 8960).

Sorbus pluripinnata and *S. scalaris* form a very remarkable and peculiar group. In common with the species of the first group they have the large herbaceous stipules, the large white-tomentose corymbs of several species of that group and the bright

[1] Between the first and the second groups there might be inserted a small group formed of the two Japanese species *Sorbus gracilis* (Siebold & Zuccarini) C. Koch and *S. Schwerini* Schneider.

red fruits. On the other hand they resemble the species of the 5th group, for the leaflets are comparatively small and numerous, the rhachis shows a tendency toward the formation of wings and the carpels are, at least in *S. scalaris*, united farther toward the apex.

Sorbus arachnoidea Koehne from Sikkim and the adjacent Thibetian district Chumbi is perhaps best referred to this group.

3. Group.[1]

12. **Sorbus Helenae** Koehne. See p. 462.
    Sorbus Helenae, f. subglabra Koehne. See p. 463.
    Sorbus Helenae, f. rufidula Koehne. See p. 463.

13. **Sorbus tapashana** Schneider in *Bull. Herb. Boissier*, sér. 2, VI. 313 (1906) "an var. *Sorbi pohuashanensis* (Hance) Rehder?"; *Ill. Handb. Laubholzk.* I. 672, fig. 369 b (1906).

Northern Shensi: Summit of Tai-pei-shan, September 10–20, 1897, *G. Giraldi* (No. 5126), August 1899, *G. Giraldi* (No. 5127); first zone and at the foot of Tai-pei-shan, August 1894, *G. Giraldi* (No. 1082).

14. **Sorbus Rehderiana** Koehne. See p. 464.
    Sorbus Rehderiana, var. grosseserrata Koehne. See p. 465.

4. Group.

15. **Sorbus aperta** Koehne. See p. 465.
16. **Sorbus laxiflora** Koehne. See p. 466.
17. **Sorbus hupehensis** Schneider. See p. 467.
    Sorbus hupehensis, var. **syncarpa** Koehne. See p. 467.

Here may probably best be added: *Sorbus foliolosa* (Wallich) Spach from Nepal and Sikkim, *S. Wattii* Koehne from Manipur and possibly also *S. Kurzii* (Watt apud Prain) Schneider from Sikkim.

5. Group.

18. **Sorbus Prattii** Koehne. See p. 468.
    Sorbus Prattii, f. laevis Koehne. See p. 468.
    Sorbus Prattii, f. striata Koehne. See p. 468.

Probably most closely allied to this species are *S. cashmiriana* Hedlund from the Himalaya from Kashmir to Simla, *S. ursina* (Wallich) Decaisne from Kamaon, *S. Wenzigiana* (Schneider) Koehne from Kamaon and Sikkim.

19. **Sorbus munda** Koehne. See p. 469.
    Sorbus munda, f. tatsienensis Koehne. See p. 469.
    Sorbus munda, f. subarachnoidea Koehne. See p. 469.

[1] In this group belong probably *Sorbus sambucifolia* (Chamisso et Schlechtendal) Roemer from Kamtchatka and Saghalin, *S. Schneideriana* Koehne from Amurland, *S. Wilfordii* Koehne from Tsushima, *S. pseudogracilis* (Schneider) Koehne from Japan, *S. Matsumurana* (Makino) Koehne from Japan, *S. polaris* Koehne from the mouth of the river Ob, and *S. thianshanica* Ruprecht from Turkestan, Afghanistan and Kashmir.

20. **Sorbus aestivalis** Koehne. See p. 469.

21. **Sorbus glomerulata** Koehne. See p. 470.

22. **Sorbus Koehneana** Schneider. See p. 470.

23. **Sorbus Vilmorini** Schneider in *Bull. Herb. Boissier*, sér. 2, VI. 317 (1906); *Ill. Handb. Laubholzk.* I. 682, fig. 374 s, 3759 r (1906); excludenda var. *setschwanensis* Schneider. — Hutchinson in *Bot. Mag.* CXXXV. t. 8241 (1909).

Cormus foliolosa Franchet in Vilmorin et Bois, *Frut. Vilmorin.* 103, fig. (1904).

Yunnan: Delavay. I have seen only cultivated specimens from the Botanic Garden at Berlin and from the Fruticetum Vilmorinianum at Les Barres.

24. **Sorbus multijuga** Koehne. See p. 472.

Sorbus multijuga, var. microdonta Koehne. See p. 473.

In this affinity belong *Sorbus microphylla* (Wallich) Wenzig from Sikkim and *S. rufopilosa* Schneider from Nepal, Sikkim and Chumbi.

25. **S. pogonopetala** Koehne. See p. 473.

26. **S. unguiculata** Koehne. See p. 474.

27. **S. setschwanensis** (Schneider) Koehne. See p. 475.

CELASTRACEAE.

EVONYMUS L.

Determined by Th. Loesener and Alfred Rehder.

Evonymus Aquifolium Loesener & Rehder, n. sp.

Frutex 3-metralis, glaberrimus; ramuli hornotini quadrangulati angulis subalatis, virides v. basim versus purpurascentes, annotini brunnei subangulati, vetustiores grisei plus minusve rimosi. Folia persistentia, coriacea, ovata v. ovato-oblonga, subsessilia, basi leviter cordata et fere amplexicaulia acuta v. breviter acuminata, inaequaliter sinuato-dentata dentibus manifeste spinosis, margine undulata, 4–7 cm. longa et 2.5–4.5 cm. lata, supra obscure luteo-viridia, subtus pallidiora, nervis utrinque 6–10 arcuatis ut costa utrinque leviter elevatis. Flores non visi. Capsulae solitariae in axillis foliorum superiorum; pedunculus angulatus, 2 cm. longus, v. interdum subnullus; pedicellus 3–7 mm. longus, subteres, bracteis rigidis subulatis 2–3 mm. longis suffultus; capsula depresso-globosa, apice impressa, 4-loba lobis dorso rotundatis, viridis, 8–10 mm. alta et 12–15 mm. diam.; semina purpurea, 1–2 in quoque loculo, arillo aurantiaco partim tantum involuta, circiter 10 mm. longa.

Western Szech'uan: Wa-shan, cliffs, rare, alt. 2200 m., November 1908 (No. **1366**).

A very distinct species on account of its holly-like leaves. It is most nearly related to *E. ilicifolia* Franchet from Yunnan which, according to Franchet's description, differs in its terete branches, narrower, reticulate and thicker leaves slightly and remotely dentate, narrower at the base and borne on petioles 3–5 mm. long.

Evonymus grandiflora Wallich in Roxburgh, *Fl. Ind.* ed. Carey II. 404 (1824); *Tent. Fl. Nepal.* 41, t. 30 (1824); *Pl. As. Rar.* III. 35, t. 254 (1832). — Lawson in Hooker f., *Fl. Brit. Ind.* I. 608 (1875). — Franchet in *Bull. Soc. Bot. France*, XXXIII. 454 (1886); *Pl. Delavay.* 130 (1889). — Loesener in *Bot. Jahrb.* XXIX. 439 (1900); XXX. 452 (1902). — Schneider, *Ill. Handb. Laubholzk.* II. 175, fig. 112 u, 114 k (1907).

Lophopetalum grandiflorum Arnott in *Ann. Nat. Hist.* III. 151 (1839).

Kiangsi: Kuling, side of streams, rare, alt. 1300 m., July 29, 1907 (No. **1581**). Western Szech'uan: Chengtu plain, near Chengtu, alt. 600 m., June 4, 1908 (No. **3128**; small tree, 4 m. high, flowers nearly white); Mao-chou, Min valley, cliffs, alt. 1000–1300 m., June 1 and September 1908 (No. **1022**; bush 1.3–3 m. tall, flowers greenish white); west and near Wên-ch'uan Hsien, alt. 1300–1600 m., Oct. 1910 (No. **4201**; bush or small tree, 5–8 m. tall, fruit salmon-red).

Evonymus japonica Thunberg, *Fl. Jap.* 100 (1784). — Hooker & Arnott, *Bot. Voy. Beechey*, 261 t. 54 (1836?). — Lindley in *Bot. Reg.* XXX. t. 6 (1844). — Maximowicz in *Bull. Acad. Sci. St. Pétersbourg*, XXVI. 441 (1881); in *Mél. Biol.* XI. 178 (1883). — Franchet in *Mém. Soc. Sci. Nat. Cherbourg*, XXIV. 206 (1882). — Hemsley in *Jour. Linn. Soc.* XXIII. 120 (1886). — Loesener in *Bot. Jahrb.* XXIX. 441 (1900); XXX. 453. — Schneider, *Ill. Handb. Laubholzk.* II. 173, fig. 111 k–p (1907).

According to Wilson the typical upright growing form of *E. japonica* apparently does not occur in western China.

Evonymus japonica, var. **radicans** Miquel in *Ann. Mus. Lugd.-Bat.* II. 86 (Prol. Fl. Jap. 18) (1865). — Maximowicz in *Bull. Acad. Sci. St. Pétersbourg*, XXVII. 441 (1881); in *Mél. Biol.* XI. 178 (1883).

Evonymus radicans Siebold apud Miquel in *Ann. Mus. Lugd.-Bat.* III. 202; *Prol. Fl. Jap.* 366 (1867).

Western Hupeh: Hsing-shan Hsien, cliffs, alt. 1000 m., June and October 1907 (No. **396**; climber, 2–5 m., flowers white, fruit white); without localtiy, April 1900 (Veitch Exped. No. 1520).

Evonymus japonica, var. **acuta** Rehder, n. var.

Differt a typo habitu scandente, foliis tenuioribus acutis v. breviter acuminatis subtus nervis leviter elevatis et venulis distinctis conjunctis. Folia elliptica v. ovato-elliptica, rarius elliptico-obovata, serrulata dentibus parvis adpressis acutis mucronulatis, 4–6 cm. longa et 1.5–3 cm. lata. Flores et fructus ut in typo.

Western Hupeh: north and south of Ichang, rocks, alt. 600–1300 m., June 1907 (No. **562**, only flowers; climber 2–4 m.); Fang Hsien, rocks, alt. 1200 m., November 1907 (No. **562**[a]; climber 2 m., fruit white); South Wushan, cliffs, 600–1200 m., October 1907 (No. **478**; climber, 3–4 m., fruit white); Changyang Hsien, alt. 1000–1300 m., October 1907 (No. **505**; prostrate over rocks, 30–60 cm., fruit white,

seeds vermilion); without precise locality, June 1900 (Veitch Exped. No. 1227).

This variety resembles, in its climbing habit, *E. japonica*, var. *radicans* Miquel, but is easily distinguished from this as well as from the type by the thinner, acute or shortly acuminate leaves distinctly veined beneath. In typical *E. japonica* the leaves are obtuse or obtusish, more coarsely and crenately serrate and of thicker texture; the veins are not as distinct as in var. *acuta*, but more so than in var. *radicans* where they are almost invisible. A picture of this new variety will be found under No. 0119 of the collection of Wilson's photographs climbing on a tree of *Cedrela microcarpa* C. De Candolle.

Evonymus oblongifolia Loesener & Rehder, n. sp.

Frutex 3-metralis; ramuli striato-subangulati, glabri, virides, tenues, hornotini subteretes, laeves, virides. Folia chartacea, decidua, elliptico-oblonga, rarius fere elliptica, acuminata, basi cuneata, serrulata, 6–10 cm. longa et 2–3.5 cm. lata, laete flavo-viridia, utrinque glabra et subconcoloria, nervis utrinsecus 8–14 sub angulo fere recto divergentibus utrinque ut costa media elevatis reticuloque venularum prominulo; petioli tenues 6–8 mm. longi. Inflorescentiae in parte ramulorum inferiore aphylla, pedunculo quadrangulari tenui 3–4.5 cm. longo rarius breviore insidentes, ter v. quater dichotome furcatae; pedicelli 1–2 mm. longi; flores 6–7 mm. diam., flavidi; sepala semi-orbicularia, circiter 1 mm. longa; petala suborbicularia, 2–2.5 mm. diam., margine undulata et leviter eroso-denticulata; stamina filamentis brevissimis, antheris luteis subglobosis; ovarium disco insidenta, breviter conicum. Fructus desideratur.

Western Hupeh: Changlo Hsien, side of streams, alt. 1300–1600 m., May 1907 (No. **3125**).

Evonymus oblongifolia seems closely related to *E. flavescens* Loesener which differs chiefly in its obovate, abruptly and shortly acuminate, smaller and more crenately serrate leaves.

Evonymus kiautschovica Loesener, var. **patens** Loesener, n. comb.

Evonymus patens Rehder in Sargent, *Trees & Shrubs*, I. 127, t. 64 (1903).—Schneider, *Ill. Handb. Laubholzk.* II. 174, fig. 112 t, 114 f–i (1907).

Western Hupeh: north and south of Ichang, rocks, etc., alt. 600–1300 m., November 1907 (No. **562**, fruit only; climber, 2–4 m., fruit white); without locality, *A. Henry* (No. 3690); Patung Hsien, cliffs, alt. 1300 m., July 1907 (No. **557**, only flowers; bush 1–3 m. tall).

No. 557 is doubtfully referred to this variety; the inflorescence has fewer flowers, the disk is broader and the leaves are generally narrower, more crenately serrate and of thicker texture with the veins indistinct beneath.

Evonymus myriantha Hemsley in *Kew Bull. Misc. Inform.* 1893, 210.

Evonymus Rosthornii Loesener in *Bot. Jahrb.* XXIX. 437, t. 4 B–F (1900).

Western Hupeh: Hsing-shan Hsien, thickets, alt. 1300–1600 m., November 1907 (No. **557**, fruit only; bush 3 m., fruit golden); same locality, May 1907 (No. **3122**; bush 3 m., flowers yellow); Fang Hsien, cliffs side of streams, alt. 1000–1600 m., May 19 and 30, 1907 (No. **3118**, **3123**); without precise locality, June 1900 (Veitch Exped. No. 995), June 1901 (Veitch Exped. No. 2106); Changyang, June 1901 (Veitch Exped. No. 576); *A. Henry* (Nos. 5335, 5540, 5945, 6126, 7016, 7823). Western Szech'uan: Mt. Omei, May and July 1904 (Veitch Exped. Nos. 4786, 4787; shrub 3–6 m. high).

Evonymus Sargentiana Loesener & Rehder, n. sp.

Frutex 3–4-metralis, glaberrima; ramuli hornotini subquadrangulares, tenues, luteo-virides, glabri, annotini subteretes obscure virides. Folia coriacea, persistentia, obovata v. oblongo-obovata, subito manifeste acuminata, basi cuneata, supra trientem inferiorem integrun leviter remote crenato-serrata, 6–9 cm. longa et 2–3.5 cm. lata, supra obscure glauco-viridia, non nitentia, subtus flavo-viridia, nervis utrinsecus 6–7 supra leviter elevatis subtus obscuris, costa media supra manifeste, subtus leviter elevata; petioli satis graciles, 8–10 mm. longi. Inflorescentia fructifera ter v. quater dichotome furcata, laxa, pedunculo angulari circiter 3 cm. longo insidens; pedicelli 5–7 mm. longi; flores non visi; capsula, 4-gona, leviter v. vix lobata, angulis acutis, oblongo-obovoidea, basim versus sensim attenuata, apice subrotundata et acutiuscula circiter 15 mm. longa et 8 mm. diam., lutea; semina immatura arillo pallido inclusa.

Western Szech'uan: Wa-shan, thickets, alt. 1300–2000 m., October 1908 (No. **1187**).

This new species is closely related to *E. myriantha* Hemsley which differs chiefly in its broader obovoid and obcordiform fruit more or less impressed at the apex, longer and stouter petioles and broader short-acuminate leaves.

Evonymus microcarpa Sprague in *Kew Bull. Misc. Inform.* 1908, 35.

Evonymus chinensis Lindley, var. *microcarpa* Oliver apud Loesener in *Bot. Jahrb.* XXX. 456 (1902).

Western Szech'uan: Tung valley, south-east of Tachien-lu, alt. 1300 m., November 1910 (No. **4165**; tree 5–7 m. tall, fruit yellow, axil

scarlet); banks of the Yangtze river, April 1903 (Veitch Exped. No. 3329; tree, 4 m. tall); without precise locality, May 1904 (Veitch Exped. No. 3332; tree, 7 m. tall). Western Hupeh: *A. Henry* (Nos. 1397, 1650, 3073, 3099, 3580). Shensi: Temple garden, foot of Tai-pei-shan, 1910, *Wm. Purdom* (No. 12); Mt. "Huan-tou-san," July 1899, *J. Giraldi*.

Evonymus Dielsiana Loesener in *Bot. Jahrb.* XXIX. 440, t. 4 L (1900); XXX. 455 (1902).

Western Hupeh: Changyang Hsien, side of streams, alt. 1500 m., July 1907 (No. **3119**; shrub 2 m. high, flowers white); Nanto, June 1900 (Veitch Exped. No. 1204); Patung Hsien, June 1901 (Veitch Exped. No. 1414).

Evonymus Rehderiana Loesener, n. sp.

Frutex 3-metralis, glaberrimus; ramuli hornotini subangulati, luteo-virides, annotini subteretes, purpurascentes, vetustiores fuscescentes; gemmae ovoideae, acutae, 4–5 mm. longae, pallidae, perulis circiter 9 exterioribus. Folia coriacea persistentia, oblonga, breviter acuminata, basi late cuneata, supra medium minute adpresse serrulata v. fere integra, laete luteo-viridia, concolora, nervis utrinsecus 6–8 supra obscuris subtus elevatis sub angulo acuto, circiter 25°, divergentibus arcuatis, costa media utrinque elevata, reticulo venularum subtus prominulo; petioli subteretes, 5–7 mm. longi. Flores desunt. Inflorescentiae fructiferae in parti inferiore aphylla ramulorum, pedunculo tereti gracili circiter 5 cm. longo, in speciminibus paucis suppetentibus fructu solitario praeditae, pedicello circiter 6 mm. longo; capsula 5-mera, depresso-globosa, vix lobata, 12–14 mm. diam., valvis dorso alatis, alis medio 3–4 mm. longis; semina nondum matura.

Western Szech'uan: Mupin, alt. 1600-2300 m., October 1908 (No. **1132**).

Evonymus Rehderiana somewhat resembles in its leaves *E. laxiflora* Champion which differs, however, in its turbinate or obcordate fruit.

Evonymus venosa Hemsley in *Kew Bull. Misc. Inform.* 1893, 210. — Loesener in *Bot. Jahrb.* XXIX. 441 (1900); XXX. 458 (1902).

Western Hupeh: Hsing-shan Hsien, rocks, side of streams, alt. 3000–3600 m., May and November 1907 (No. **559**; bush, 1 m. tall, flowers greenish); without precise locality, *A. Henry* (Nos. 5778, 7019). Shensi: "Kin-san," July 23, 1897, *G. Giraldi*.

Evonymus cornuta Hemsley in *Kew Bull. Misc. Inform.* 1893, 209. — Loesener in *Bot. Jahrb.* XXIX. 441 (1900); XXX. 458 (1902).

Western Hupeh: Fang Hsien, thickets, alt. 2000–2300 m., November 1907 (No. **558**; bush 1.50 m.). Western Szech'uan: Mao-chou, thickets, alt. 1600 m., May 23, 1908 (No. **558**[a]; bush 1 m.); Chin-chi Hsien, thickets, alt. 2600–3000 m., September 15, 1908 (No. **967**[a], fruiting specimen only; bush 2–3 m. tall); west and near Wên-ch'uan Hsien, thickets and woodlands, alt. 1600–2300 m., July and September 1908 (Nos. **1047**, **1049**; bush 1 m. tall); same locality, October 1910 (No. **4183**; bush 2–3 m., fruit dull red); Pan-lan-shan, west of Kuan Hsien, thickets, alt. 2300–2600 m., June 1908 (No. **3105**; bush 2 m. tall); same locality, October 1910 (No. **4291**; bush 2–3 m.); west of Kuan-Hsien, thickets and rocky places, alt. 2000–2600 m., June 1908 (Nos. **3104**, **3106**, **3107**; bush 1–1.60 m., flowers purple); without precise locality, alt. 2800 m., July 1903 (Veitch Exped. No. 3333). Shensi: Tai-pei-shan, 1910, *W. Purdom* (Nos. 6, 432).

Evonymus subsessilis Sprague in *Kew Bull. Misc. Inform.* 1908, 34.

Western Szech'uan: Wa-shan, climbing over rocks, alt. 1600–2500 m., August 1908 (No. **1215**); Mt. Omei, June 1904 (Veitch Exped. No. 4784, 4785; bush 2.5 m.). Western Hupeh: Ichang, *A. Henry* (Nos. 3511, 3511[a], 3511[b]).

Evonymus subsessilis, var. **latifolia** Loesener, n. var.

A typo differt foliis latioribus ovalibus usque late ovatis rarius oblongis, pedunculis tenuioribus, non alatis tantum angulatis, fructu aculeis obsoletioribus parcioribus, tamen conspicuis.

Western Szech'uan: Wa-shan, woodlands, alt. 1600–2300 m., October 1908 (No. **1216**; bush, 2–4 m. tall).

The leaves of this variety which attain a length of 11 cm. by 5.5 cm. are very similar to those of *E. Bockii* Loesener, but their petioles are shorter and the capsules show a few small prickles, while those of *E. Bockii* are always quite smooth.

Evonymus mupinensis Loesener & Rehder, n. sp.

Frutex 1–2-metralis, sempervirens, glaber; ramuli acute quadrangulati v. anguste quadrialati. Folia coriacea, ovata v. elliptico-ovata, obtusiuscule acuta, basi rotundata, fere a basi ad apicem adpresse serrata dentibus mucrone fusco spinuloso porrecto v. incurvo terminatis, 3–5 cm. longa et 1.5–3.5 cm. lata, supra obscure viridia subtus pallide viridia et saepe fulvescentia, nervis utrinsecus 4–6 subangulo

acuto divergentibus et ad apicem versus arcuatis supra et subtus elevatis v. subtus minus elevatis quam supra, venulis obsoletis v. fere obsoletis. Inflorescentiae in axillis foliorum mediorum, plerumque ter dichotomae, densae, circiter 2 cm. diam.; pedunculi alati, 2–3 cm. longi; pedicelli verruculosi, 2–4 mm. longi, basi bracteis minutis acuminatis fuscis suffulti; flores 4-meri, 6–7 mm. diam., albi; sepala lata, rotundata; petala late obovata, margine inflexa, 2.5 mm. longa; discus crassiusculus, explanatus, leviter 4-lobus; stamina in margine disci inserta, filamentis subulatis, 1.5 mm. longis, antheris suborbicularibus flavidis; ovarium 4-lobum, dense papillosum, stylo 1 mm. longo fere cylindrico coronatum, in floribus masculis vix elevatum, estylosum. Fructus desideratur.

Western Szech'uan: Mupin, cliffs, alt. 1300–1600 m., June 1908 (No. **3115**).

This species is closely related to *E. subsessilis* Sprague which differs chiefly in the narrower leaves usually broadly cuneate at the base, and more or less impressed along the veins.

Evonymus aculeatus Hemsley in *Kew Bull. Misc. Inform.* 1893, 209. — Loesener in *Bot. Jahrb.* XXX. 459 (1902). — Sprague in *Kew Bull. Misc. Inform.* 1908, 33.

Eastern Szech'uan: South Wushan, thickets, alt. 1300 m., October 1910 (No. **459**; bush 3 m. tall); same locality, *A. Henry* (No. 5335[a]).

Evonymus acanthocarpa Franchet, *Pl. Delavay.* 129 (1889). — Loesener in *Bot. Jahrb.* XXIX. 439 (1900); XXX. 459 (1902). — Sprague in *Kew Bull. Misc. Inform.* 1908, 32.

Western Hupeh: Hsing-shan Hsien, side of streams, alt. 1300–1600 m., June 1909 (No. **3117**; bush 2–3 m., flowers greenish). Western Szech'uan: west and near Wên-ch'uan Hsien, alt. 1300–1600 m., October 1908 (No. **1089**; bush 2–3 m.).

Evonymus acanthocarpa, var. **sutchuenensis** Franchet apud Loesener in *Bot. Jahrb.* XXIX. 439 (1900); XXX. 459 (1902).

Western Hupeh: south of Ichang, rocky places, alt. 1300 m., July and October 1907 (No. **504**; bush 0.30–3 m., flowers yellowish); Hsing-shan Hsien, thickets, alt. 1000–1600 m., July 1907 (No. **3116**; bush 3 m., flowers greenish); Fang Hsien, thickets, alt. 1300 m., July 1907 (No. **3120**; bush 3 m., flowers yellowish); Patung Hsien, thickets,

alt. 1300 m., July 1907 (No. **3121**; bush 4 m.). Western Szech'uan: Mt. Omei, July 1904 (Veitch Exped. No. 4784[a]; bush, 5 m.).

Evonymus yedoensis Koehne, var. **Koehneana** Loesener, n. var.

A typo nervis subtus pilosis recedit.

Western Hupeh: north and south of Ichang, thickets, alt. 1000–1500 m., May 26, June, September and October 1907 (Nos. **353**[a], type, **353**, in part; bush 1–2 m., flowers white); Fang Hsien, June 1901 (Veitch Exped. No. 891[a]); Patung Hsien, side of streams, alt. 600–2200 m., June 1907 (No. **3112**; bush 1–2 m., flowers white); without precise locality, June 1901 (Veitch Exped. No. 765[a]), July 1900 (Veitch Exped. No. 1446), *A. Henry* (No. 6648). Shensi: Tai-pei-shan, 1910, *W. Purdom* (No. 8).

Evonymus lanceifolia Loesener in *Bot. Jahrb.* XXX. 462 (1902).

Western Hupeh: Fang Hsien, side of streams, alt. 1500 m., July 1907 (No. **353**, in part; bush, 1–2 m., flowers white); south Wushan, thickets, alt. 1200 m., October 1907 (No. **450**; bush 2–4 m., fruit white); Changyang, May 1900 (Veitch Exped. No. 765; bush 2 m., flowers white); without precise locality, May 1900 (Veitch Exped. No. 891). Western Szech'uan: Wên-ch'uan Hsien, dry, warm river valleys, alt. 600–1000 m., June and November 1908 (No. **1105**; bush 2–3 m., or tree to 14 m. tall, girth 1.60–2.60 m.); Wa-shan, thickets, alt. 2000 m., July and October 1908 (No. **1105**[a]; bush 1–2 m., flowers white); north of Tachien-lu, thickets, alt. 2000–2300 m., October 1910 (No. **4180**; bush 3 m., fruit orange). Yunnan: Mengtze, *A. Henry* (No. 11165, type); Szemao, *A. Henry* (No. 13411).

A picture of this plant will be found under No. 71 of the collection of Wilson's photographs and also in his *Vegetation of Western China*, No. 215.

Evonymus saxicola Loesener & Rehder, n. sp.

Frutex 1–1.5 m. altus, glaberrimus, ramis divaricatis; ramuli hornotini et annotini tenues, subquadrialati, virides, vetustiores brunnescentes, lenticellati. Folia decidua, ovato-oblonga, basi rotundata, apice obtusa v. acutiuscula, crenato-serrata, 1.5–2.5 cm. longa et 8–11 mm. lata, luteo-viridia, concolora, nervis utrinsecus 3–5 utrinque leviter elevatis, costa media utrinque prominula, venulis obsoletis; petioli tenues, 2–4 mm. longi. Flores desunt. Cymae fructiferae ut videtur bis dichotome furcatae; pedunculus tenuis, teres, 1.5–2.5 cm. longus; pedicelli graciles 2–5 mm. longi; capsula 4-mera,

ambitu depresso-globosa, lobata, dorso loborum rotundato leviter costato, apice plus minusve intrusa, 7–9 mm. diam., circiter 6 mm. alta, luteo-viridis; semina solitaria in quoque loculo, testa purpurea, arillo aurantiaco dimidium tantum semen involvente.

Western Szech'uan: Mupin, cliffs, alt. 1300–1600 m., October 1910 (No. **4378**).

This species is related to *E. Semenovii* Regel & Herder, which differs in its longer and more acute leaves and the longer peduncles; it is also related to *E. Przewalskii* Maximowicz which may be distinguished by the acuminate, more closely serrate leaves and by the narrowly winged fruit.

Evonymus Semenovii Regel & Herder in *Bull. Soc. Nat. Mosc.* XXXIX. pt. I. 557 (1866).

Western Szech'uan: north-east of Tachien-lu, thickets, alt. 3000–3300 m., July 9, 1908 (No. **3126**; bush 1–2 m., flowers dark red).[1]

Evonymus nanoides Loesener & Rehder, n. sp.

Frutex 0.60–1.00 m. altus; ramuli hornotini subquadrialati, tenues, puberuli, virides; annotini acute quadrangulares, virides; gemmae terminales parvae acutae, brunneae. Folia anguste lanceolata v. lineari-lanceolata, utrinque attenuata, apice acutiuscula, minute adpresse serrulata dentibus fere ad mucronem brunneum reductis, 0.8–2 cm. longa et 1.5–4 mm. lata, utrinque ad costam mediam et sparse ad nervos secundarios minute hirtula, luteo-viridia, concolora, nervis utrinsecus 3–5 obsoletis; petioli minute hirtuli, 1–3 mm. longi. Flores desunt. Fructus solitarii v. bini axillares brevissime pedicellati; capsula 4-mera, ambitu depresso-globosa, fere ad medium lobata lobis obtusis adscendentibus, 10–12 mm. diam. et 6 mm. alta, apice truncata et leviter intrusa, plerumque valvis 2 tantum fertilibus; semina in quoque loculo solitaria, ovoidea, 5–6 mm. longa, purpurea, arillo aurantiaco apice aperto inclusa.

Western Szech'uan: Min valley, Wei-chou, cliffs, alt. 1600–2300 m., August 1910 (No. **4567**).

[1] A closely related species from Kansu is the following:

Evonymus Przewalskii Maximowicz in *Bull. Acad. Sci. St. Pétersbourg*, XXVII. 451 (1881); in *Mél. Biol.* XI. 194 (1881); in *Act. Hort. Petrop.* XI. 97 (1890). — Loesener in *Bot. Jahrb.* XXX. 464 (1902).

Kansu: Minchou district, alt. 2800 m., 1910, *W. Purdom*.

Purdom's specimen, which is in flower, agrees very well with the description of Maximowicz's species of which I have seen no specimens and seems to differ from it only in the leaves being mostly broadly cuneate at the base, though they are broadest below the middle. A. R.

This species seems most nearly related to *E. nana* Marschall-Bieberstein which is easily distinguished by its alternate or whorled leaves and by the longer peduncles; *E. Przewalskii* Maximowicz and *E. Semenovii* Regel & Herder differ in their larger and broader leaves and slender peduncles.

Evonymus verrucosoides Loesener in *Bot. Jahrb.* XXX. 462 (1902).

Western Szech'uan: Ta-p'ao-shan, north-east of Tachien-lu, thickets, alt. 2300–2600 m., July 3, 1908 (No. **3129**; bush, 2 m., flowers dark red); valley of Hsao-chin-ho, Monkong Ting, alt. 2300–2600 m., June 1908 (No. **3127**; bush, 1–2 m., flowers dark red). Western Hupeh: Hsing-shan Hsien, thickets, alt. 1800 m., July 1907 (No. **3124**; bush 2 m. tall, flowers bronzy-yellow).

No. 3127 differs from the type in its much smaller leaves not exceeding 2 cm. No. 3124 forms a transition to the following variety.

Evonymus verrucosoides, var. **viridiflora** Loesener & Rehder, n. var.

A typo recedit floribus viridibus v. virescentibus, foliis tenuioribus, magis acuminatis, distinctius petiolatis.

Western Szech'uan: Pan-lan-shan, west of Kuan Hsien, cliffs, alt. 2300–2800 m., June 1908 (No. **3113**, type; bush, 1.20 m., flowers green).

Evonymus alata Regel, *Fl. Ussur.* 40, t. 7 (1861). — Miquel in *Ann. Mus. Lugd.-Bat.* II. 86 (1865). — Maximowicz in *Bull. Acad. Sci. St. Pétersbourg*, XXVII. 453 (1881); in *Mél. Biol.* XI. 196 (1883). — Loesener in *Bot. Jahrb.* XXIX. 444 (1900).

Celastrus striatus Thunberg, *Fl. Jap.* 98 (1784).
Celastrus alatus Thunberg, l. c. (1784).
Evonymus subtriflora Blume, *Bijdr. Fl. Ned. Ind.* 1147 (1825).
Evonymus Thunbergiana Blume, l. c. (1825). — Baker & Moore in *Jour. Linn. Soc.* XVII. 380 (1880). — Franchet in *Nouv. Arch. Mus. Paris*, sér. 2, V. (*Pl. David.* I. 70) (1883). — Hemsley in *Jour. Linn. Soc.* XXIII. 121.
Melanocarya alata Turczaninow in *Bull. Soc. Nat. Mosc.* I. 453 (1858).
Evonymus striata Loesener in *Bot. Jahrb.* XXX. 463 (1902). — Schneider, *Ill. Handb. Laubholzk.* II. 172, fig. 111 a–c (1907).
Evonymus Loeseneri Makino in *Tokyo Bot. Mag.* XXV. 229 (1911).

Kiangsi: Kuling, side of streams, not common, alt. 1300 m., July 29, 1907 (No. **1580**; bush 3 m.). Western Hupeh: north and south of Ichang, thickets, alt. 300–1000 m., May, September, October and November 1907 (Nos. **354**, **354**[a]; bush, 1–3 m.); Ichang, thickets, ravines, alt. 300–600 m., April 1907 (Nos. **3103**, **3538**; bush, 1–1.30 m., flowers white); without precise locality, May 1900 (Veitch Exped. Nos.

36, 36[b]), *A. Henry* (Nos. 1172, 2096, 3087, 3394, 6708, 7054, 7168, 7412). Shensi: Tai-pei-shan, 1910, *W. Purdom;* north-west of Hanchung Hsien, 1910, *W. Purdom* (No. 375); Yenan Fu, 1910, *W. Purdom* (No. 342); "Kin-qua-san," July 1897, *G. Giraldi;* "Huo-kio-zay," July 16, 1897, *G. Giraldi;* "Thui-kio-thien," October 9, 1897, *G. Giraldi;* "Lao-y-san," *G. Giraldi.* Chili: Weichang, 1910, *W. Purdom.* Shingking: *F. N. Meyer* (No. 24). Shantung: Tsing-tau, *R. Zimmermann* (No. 184). Chekiang: Ningpo, 1908, *D. Macgregor.*

Evonymus alata, var. **aperta** Loesener, n. var.

A typo recedit foliis minoribus, tantum 2.3–3.8 cm. longis, axillo rubro apice aperto, reminis testa atra, non fusca.

Western Szech'uan: near Tachien-lu, alt. 2300–2600 m., October 1910 (No. **4178**; bush 3 m., fruit dull red, axil scarlet, seeds black); same locality, thickets, alt. 1600–2500 m., September 1908 (No. **3102**; bush 2–3 m.); Sungpan, alt. 2600 m., October 1910 (No. **4152**; bush 3 m., fruit purple, seeds black and orange-red).

A well-marked variety and very handsome in fruit with the black seeds protruding from their scarlet arils.

Here may be added another new variety from northeastern China:

Evonymus alata, var. **pilosa** Loesener & Rehder, n. var.

Evonymus Thunbergianus Blume, var. Baker & Moore in *Jour. Linn. Soc.* XVII. 380 (1880).

A typo foliis subtus in nervis puberulis.

Chili: Weichang, 1909, *W. Purdom* (No. 30).

Evonymus sanguinea Loesener, var. *β.* **camptoneura** Loesener in *Bot. Jahrb.* XXIX. 442, t. 5 a–b (1900); XXX. 465 (1902).

Western Hupeh: Fang Hsien, woodlands, alt. 2000–2600 m., May 1907 (No. **3111**; bush 2–3 m., flowers greenish); Kui-chou, June 1901 (Veitch Exped. No. 589[a]); Patung Hsien, May 1901 (Veitch Exped. No. 589); without precise locality, April 1901 (Veitch Exped. No. 2053), June 1900 (Veitch Exped. No. 1160, in part), *A. Henry* (Nos. 5445, 6039, 6507, 6556). Western Szech'uan: south-east of Tachien-lu, thickets, alt. 1600–2300 m., October 1910 (No. **4177**; bush 1.30–2 m.); Mupin, thickets, alt. 2600–3000 m., October 1910 (No. **4308**; bush 3–5 m., fruit purple); Wa-shan, woodlands, alt. 1600–2600 m., September 1908 (No. **968**, in part, fruiting specimens); without locality, alt. 3600–4000 m., June 1904 (Veitch Exped. No. 3331), *A. Henry* (Nos. 5562, 7254).

The variety *camptoneura* seems to be much more common than the var. *a. orthoneura* Loesener; the latter is represented in the Arnold Arboretum Herbarium by Rosthorn's No. 491 (fragment and photograph only) and Henry's No. 6183 and by part of Wilson's Veitch Exped. No. 1160 (fruiting specimens; the flowering specimen belongs to var. *camptoneura*); Henry's Nos. 6556 and 7254 form a transition to var. *camptoneura*.

Evonymus sanguinea, var. **brevipedunculata** Loesener, n. var.

A typo pedunculis tantum usque 2.6 cm. longis recedit.

Western Szech'uan: dry, warm river valleys west of Tachien-lu, alt. 3000–3300 m., October 1908 (No. **1308**; tree 7 m. tall, trunk 0.30 m. diam.).

This variety forms a transition to the following species.

Evonymus Giraldii Loesener, var. **ciliata** Loesener in *Bot. Jahrb.* XXIX. 443 (1900); XXX. 465 (1902).

Western Hupeh: Hsing-shan Hsien, woodlands, alt. 2300 m., September 1907 (No. **356**, in part; specimens with open fruit).

The specimen from Szech'uan differs in its much longer peduncles, up to 6 cm. in length.

Evonymus Giraldii Loesener, var. **angustialata** Loesener, n. var.

A typo recedit capsulis alis perangustis, pedunculis usque ad 4 cm. longis.

Western Hupeh: Hsing-shan Hsien, woodlands, alt. 2300 m., September 1907 (No. **356**, in part; specimens with closed fruit). Western Szech'uan: south-east of Sungpan, thickets, alt. 2300–3000 m., August 1910 (No. **4566**; bush 3 m.); without precise locality, alt. 3600 m., September 1903 (Veitch Exped. No. 3334; bush 1.30–2 m.) Shensi: "Thai-pei-san," September 1899, *G. Giraldi*.

Evonymus porphyrea Loesener in *Not. Bot. Gard. Edinburgh* (*Pl. Chin. Forrest.* No. 2240) (ined.).

Western Hupeh: Hsing-shan Hsien, woodlands, alt. 1300–2300 m., June 5, 1907 (No. **356**, in part, flowering specimens; flowers dull red). Western Szech'uan: Wa-wu-shan, Hung-ya Hsien, woods, alt. 1600–2000 m., September 1907 (No. **967**; bush 1.30–2 m.); Wa-shan, woodlands, alt. 1600–2600 m., June 1908 (No. **968**, in part, flowering specimens; flowers purple); west of Kuan Hsien, woodlands, alt. 2600–3000 m., June 20, 1908 (No. **3109**; bush, 2–5 m., flowers dark purple); Mupin, thickets, alt. 1600–2600 m., June 1908 (No.

3110, in part, flowering specimens only); Ta-hsiang-ling, Chin-chi Hsien, woodlands, alt. 2000–2300 m., May 1908 (No. 3108; bush 1.60 m., flowers purple); Chin-chi Hsien, thickets, alt. 2600–3000 m., June 15, 1908 (No. 967[a], in part, flowering specimen; flowers dark purple, bush 2–3 m.).

Evonymus dasydictyon Loesener & Rehder, n. sp.

Frutex 2–6-metralis, glaber; ramuli teretes, hornotini virescentes, annotini purpureo-fusci; gemmae conico-oblongae, 5–7 mm. longae, perulis apice purpurascentibus margine angustissime scariosis. Folia decidua, chartacea, elliptica v. oblonga, acuminata et interdum longe acuminata, basi cuneata, in petiolum decurrentia, margine dense serrulata denticulis incurvis mucronulatis, 4–10 cm. longa et 2–4 cm. lata, supra obscure viridia, non nitida, leviter reticulata, subtus flavo-viridia, manifeste reticulata, nervis utrinsecus 4–5 angulo angusto, circiter 15–20°, divergentibus, supra ut costa media leviter elevatis et colore flavido conspicuis, venulis et nervis sub lente valida rugulosis; petioli flavo-virides, plani, margine subalati, 5–10 mm. longi. Inflorescentia (fructifera tantum visa) bis ad quater furcata, pedunculo 2.5–3.5 cm. longo tereti incluso ad. 7.5 cm. longa; pedicelli breves 3–5 mm. longi; capsula ambitu subglobosa, (immatura tantum visa) circiter 1 cm. alta, 4-mera, manifeste alata, alis deltoideis circiter 6 mm. longis et basi 7 mm. latis apice obtusis.

Western Szech'uan: Mupin, thickets, alt. 1600–2600 m., July 1908 (No. 3110, in part, fruiting specimens).

This species is most closely related to *E. sanguinea* Loesener which differs chiefly in its thinner leaves less strongly, though distinctly, reticulate, with the veins and veinlets not rugulose, broadly cuneate or rounded at the base and in the fruit which is truncate at the base and rounded at the apex.

Evonymus elegantissima Loesener & Rehder, n. sp.

Frutex 2-metralis, glabra; ramuli hornotini subteretes tenues, pallide virides, annotini teretes, purpurascentes v. fuscescentes, vetustiores purpureo-fusci; laeves; gemmae conico-ovoideae, 3–4 mm. longae, perulis viridibus margine pallide brunneo scarioso, lacero. Folia membranacea, oblongo-lanceolata v. anguste lanceolata, acuminata, basi cuneata, dense serrulata dentibus minutis aristato-mucronatis laxe adpressis, 4–9 cm. longa et 1–2 cm. lata, supra luteo-viridia, non nitentia subtus pallide viridia nervis utrinsecus 5–6 sub angulo acuto, circiter 15–20°, divergentibus supra ut costa media leviter elevatis et

colore flavido conspicuis subtus leviter elevatis, reticulo venularum vix conspicuo; petioli compressi, subalati, 3–5 mm. longi. Inflorescentia laxa, pauciflora, semel v. bis furcata, pedunculo gracili tereti 8–14 cm. longo, radiis primi ordinis 3–5 subverticillatis unifloris et 1.5–2.5 cm. longis v. bi- ad trifloris et 2–7 cm. longis (inflorescentia tota ad 20 cm. longa); flores 4-meri, 6–7 mm. diam. virides; sepala late semiorbicularia; petala ovalia; stamina filamentis brevissimis, antheris non visis; ovarium disco insidens, 4-lobum. Capsula immatura depresso-subglobosa, circiter 1 cm. diam. et fere alta, 4-alata, alis angustis, 10–18 mm. longis et 3–4 mm. latis apcie rotundatis marginibus fere parallelis paullo supra basin subito dilatatis et ad basim apicemque capsulae decurrentibus; semina immatura.

Western Hupeh: Fang Hsien, cliffs, very rare, alt. 1600–2300 m., May 26, 1907 (No. **3114**, type); without precise locality, *A. Henry* (No. 6584).

This species is well characterized by its narrow leaves and extremely long and slender peduncles. It is apparently nearest to *E. sanguinea* Loesener which is easily distinguished by its broader leaves and shorter peduncles; in its narrow leaves it resembles *E. cornuta* Hemsley, but that species differs widely in its 5-merous purple flowers, in the narrower wings of the fruits and in the shorter peduncles.

HIPPOCASTANACEAE.

Determined by ALFRED REHDER.

AESCULUS L.

Aesculus Wilsonii Rehder, n. sp.

Aesculus chinensis Diels in *Bot. Jahrb.* XXIX. 450 (non Bunge) (1900). — Schneider, *Ill. Handb. Laubholzk.* II. 249, fig. 171 f, 173 b–c (1909). — Pampanini in *Nuov. Giorn. Bot. Ital.* n. ser. XVIII. 235 (1911).
Aesculus indica Pampanini in *Nuov. Giorn. Bot. Ital.* n. ser. XVII. 423 (non Colebrooke) (1910).

Arbor ad 25 m. alta, trunco 4 m. circuitu, cortice pallide griseo-brunneo sublaevi lenticellis numerosis parvis notato in lamellas tenues solubili, sub lamellis cinnamomeo; ramuli validi, initio dense villosuli, mox glabrescentes, vetustiores cinereo-brunnei; gemmae terminales ovoideae, obtusiusculae, 1.5–2 cm. longae, castaneo-brunneae, resinosae, perulis exterioribus imbricatis 6–8. Folia digitata, longe pedunculata pedunculo puberulo v. glabrescente 8–15 cm. longo; foliola 5–7, petiolulata, oblongo-obovata v. oblonga v. oblongo-oblanceolata, acuminata v. subito acuminata, basi rotundata v. late cuneata rarius subcordata, dense serrulata dentibus calloso-mucronatis vix incurvis, 10–25 cm. longa et 4–10.5 lata, supra laete viridia, glabra costa media basim versus villosula excepta, nitentia, subtus initio cinereo-tomentosa v. dense villosula, maturitate glabrescentia, pallide viridia, reticulo venularum prominulo, nervis utrinsecus 15–20 supra flavescentibus leviter elevatis subtus ut costa manifeste elevatis; petioluli puberuli, 0.8–3 cm. longi. Panicula terminalis, magna, sine pedunculo 8–10 cm. longo sparse villosulo v. puberulo 20–30 cm. longa et basi 8–11 cm. diam., puberula, inflorescentiae partiales (drepanii) graciliter pedicellati, 5–10-flori, fere horizontaliter patentes; pedicelli circiter 5 mm. longi; flores fragrantes; calyx tubulosus, 6–7 mm. longus, extus puberulus, lobis 5 inaequalibus, obtusis, circiter 1 mm. longis, minute ciliolatis; petala 4, 12–14 mm. longa, extus tomentosa intus glabra, villoso-ciliata, alba, superiora spathulato-oblonga, sensim in unguiculam attenuata, supra 3 mm. lata, maculo luteo ornata, lateralia obovato-oblonga, 4.5 mm. lata, basi cuneata; stamina plerumque 7, inaequalia, ad 3 cm. longa, filamentis complanatis glabris, antheris

ovoideis, 1.3 mm. longis; pistillum in floribus masculis ad stylum calycem vix v. paullo superantem glabrescentem disco lobulato insidentem reductum; in flore fertili ovarium ovoideum, 4–5 mm. longum, rufo-tomentosum; stylus apice glabro excepto dense breviter villosus, cum ovario circiter 3 cm. longus. Capsula 3-valvis, inermis, verruculosa, flavo-brunnea, inaequaliter ovoidea, vix pyriformis, 3–4 cm. longa, mucronata, plerumque monosperma, valvis tenuibus, fragilibus, in sicco 1.5–2 mm. crassis; semen subglobosum, 3–3.5 cm. diam. castaneum, hilo magno albido suborbiculari 2.5–3 cm. diam. circiter tertiam partem seminis occupante.

Western Szech'uan: Hsin-wên-ping, Min valley, alt. 1000 m., June 1, 1908 (No. **200**, type); Nanch'uan, *A. von Rosthorn* (ex Diels). Western Hupeh: north and south of Ichang, woods, alt. 1300–1800 m., September 1907; Hsing-shan Hsien, woods, alt. 1300–2000 m., May 25, June and September 1907; Fang Hsien, woods, alt. 1600–2000 m., October 1907; Changlo Hsien, woods, alt. 1300–2000 m., May and June 1907; Changyang Hsien, woods, alt. 1300–1600 m., April 6, 1907 (all under No. **200**); without locality, June 1900 (Veitch Exped. No. 1303). Eastern Szech'uan: south Wushan, *A. Henry* (Nos. 5892, 7203, 7203[a]); "Ou-kia-ki, Ou-tan-scian, North Siho," *C. Silvestri* (Nos. 1388, 1389, 3097, ex Pampanini).

This beautiful tree has been usually confused with *A. chinensis* Bunge, which differs in its nearly glabrous short-petiolulate leaves sparingly pilose only on the veins below and cuneate at the base, in the smaller flowers and chiefly in the subglobose slightly depressed fruit truncate and slightly impressed at the apex, with thick walls, in the dry fruit 3–4 mm. thick, and in the smaller seeds with the hilum occupying one half or more than one half of the surface of the seed. It is also closely allied to *A. indica* Colebrooke, which differs in its larger flowers with much broader petals, in the inflorescence with less crowded ascending ramifications and in the cuneate glabrous leaflets; *A. punduana* Wallich, which more resembles our species in its inflorescence and flowers, is easily distinguished by its very short-stalked cuneate and glabrous subcoriaceous and indistinctly serrulate leaflets.

Pictures of *A. Wilsonii* will be found under Nos. 96 and 343 of the collection of Wilson's photographs and also in his *Vegetation of Western China*, Nos. 114 and 115.

Though I have not seen the specimens collected by A. von Rosthorn in Szech'uan and by Silvestri in Hupeh, I have no doubt that they belong to *A. Wilsonii*, while the specimen collected by Piasezki in Shensi is probably the true *A. chinensis* to which Maximowicz referred it.

As a complete description of *A. chinensis* has not been published, a description of this species based on the material in the herbarium of the Arnold Arboretum may be given here:

Aesculus chinensis Bunge in *Mém. Soc. Etr. Acad. Sci. St. Pétersbourg*, II. 84 (*Enum. Pl. Chin. Bor.* 10) (1833). — Walpers, *Rep.* I. 423. — Hance in *Jour. Bot.* VIII. 312 (1870). — Hemsley in *Jour. Linn. Soc.* XXIII. 139 (1886). — Maximo-

wicz in *Act. Hort. Petrop.* XI. 105 (1890). — Purdom in *Gard. Chron.* ser. 3, LXIV. 346, fig. 150–152 (1912).

Arbor ad 25-metralis; ramuli hornotini glabri v. initio minutissime puberuli, annotini flavescentes v. flavo-cinerei, lenticellis parvis instructi. Folia 5–7-foliolata; foliola membranacea, oblongo-oblanceolata v. obovato-oblonga v. oblonga, subito acuminata, basi cuneata, inferiora obliqua, extus interdum fere rotundata, argute inaequaliter serrulata dentibus acutiusculis v. obtusiusculis, 9–16 cm. longa et 3–5.5 cm. lata, laete viridia, supra glaberrima, subtus ad costam mediam praesertim in parti inferiore et saepe in parte inferiore nervorum pilosula, ceterum glaberrima, maturitate subtus et supra (in sicco saltum) leviter elevato-reticulata, costa media supra leviter, subtus manifeste elevata, nervis utrinsecus 13–17 subtus elevatis; petiolulus folioli medii circiter 1 cm., ei foliolorum exteriorum 2–3 mm. longi puberuli; petioli 6–12 mm. longi, minute puberuli. Panicula cylindrica cum pedunculo 5–8 cm. longo fere glabro circiter 25 cm. longa; rhachis minute puberula; inflorescentiae partiales numerosissimae, graciliter pedunculatae pedunculo 1–1.5 longo, 5–10-florae, minute puberulae; pedicelli 2–4 mm. longi; calyx anguste campanulatus, 4–5 mm. longus, extus minute puberulus, inaequaliter 5-lobatus, saepe irregulariter bilabiatus lobis obtusis brevibus minute ciliolatis; petala 4, circiter 10 mm. longa, alba, minute ciliolata, extus puberula, intus glabra, superiora oblanceolata, 1.5 mm. lata, lateralia oblongo-obovata basi sensim in unguiculans attenuata, circiter 2.5 mm. lata; stamina plerumque 6, 20–30 mm. longa, filamentis filiformibus glabris, antheris oblongis fulvis 1.5 mm. longis; pistillum rudimentarium floris masculi clavatum calycem vix superans. Fructus globoso-obovoideus, apice truncatus plerumque leviter impressus, 3–4 cm. diam., pallide flavo-cinereus dense verruculosus, pariete exteriore valvarum 5–6 mm. crassa, in sicco; semina plerumque tantum 1–2 evoluta, subglobosa, 2–2.5 cm. diam., obscure castaneo-brunnea, sed hilo albido plus quam dimidiam partem seminis occupante.

Chili: near Peking, western hills, growing in temple grounds, April 30, 1912, *W. Purdom* (No. 874; flowers not yet open); Peking, September 20, 1877, *E. Bretschneider* (leaves); same locality, 1882, *E. Bretschneider* (fruits); without locality and without collector (ex Herb. St. Petersburg; flowers). Shensi: without locality, *Piasezki* (ex Maximowicz).

This species has been often confused with *A. turbinata* Blume, which has entirely different leaves and flowers; the leaflets are sessile, obovate, larger, pubescent on the under surface or at least ferruginously pubescent on the midrib and veins while young; the flowers are similar in color and shape to those of *A. Hippocastanum* Linnaeus, but smaller (a good colored plate will be found in Shirasawa, *Icon. Ess. For. Jap.* I. t. 71); the fruits are similar to those of *A. chinensis*, but they are larger, about 4–5 cm. long, rounded and even slightly apiculate at the apex, dark brown and densely dotted with rather large light yellowish brown warts, not uniformly pale yellowish brown as in *A. chinensis:* the walls are about 3–4 mm. thick; the seeds which have the same large hilum differ in their size, measuring 2.5–3.5 in diameter.

Aesculus chinensis seems to occur in the neighborhood of Peking as a planted tree only and it is possible that like the Moutan it is a native of Shensi, where Piasezki collected it according to Maximowicz, and that it, like the Moutan, was carried eastward with the spread of Chinese civilization. It is extremely rare in European gardens; the only definite proof of its existence we have, are some fruits collected by Professor Sargent at the famous arboretum at Segrez in 1887, but the tree probably no longer exists, at least the writer did not notice it, as he visited the same place in 1905. It has recently been reintroduced by the Arnold Arboretum through its collector W. Purdom.

CLETHRACEAE.

Determined by ALFRED REHDER and E. H. WILSON.

CLETHRA L.

Clethra monostachya Rehder & Wilson, n. sp.

Frutex v. arbor parva, 2–6 m. alta; ramuli hornotini initio stellato-pilosi, mox glabrescentes, purpureo-brunnei, annotini brunnei cortice solubili; gemmae elongatae, acutae, dense sericeo-villosae. Folia membranacea, ovato-lanceolata v. elliptico-lanceolata, rarius lanceolata, acuminata, basi cuneata, serrata dentibus adpressis mucronatis, 8–14 cm. longa et 2.5–5 cm. lata, supra obscure viridia, glabra, subtus pallidiora, in axillis venarum barbata ceterum glabra, costa media supra impressa subtus elevata, nervis utrinsecus 10–16 subtus elevatis; petioli glabri, supra canaliculati, interdum leviter alati, 1–2.5 cm. longi. Racemi terminales solitarii, rarius 3, laxi, 15–20 cm. longi, lateralibus fere dimidio minoribus, rhachis ut pedicelli stellato-tomentosa; pedicelli 5–8 mm. longi, bracteis lanceolatis caducis circiter 5 mm. longis suffulti; sepala ovata, acuta, 2.5–3 mm. longa, extus dense villosa; petala oblonga v. ovali-oblonga, leviter concava, obtusa v. emarginata, 5–6 mm. longa, glabra; stamina petalis paullo longiora, filamentis basi dilatatis infra medium sparse villosis, antheris fere 2 mm. longis; stylus staminibus paullo brevior infra apicem curvatus, adpresse pilosus apice excepto, stigmate 3-lobo; ovarium dense villosum, apice pilosum. Capsula nutans, subglobosa, circiter 5 mm. diam., tomento cinereo-fusco obtecta, stylo persistente coronata, basi sepalis persistentibus adpressis suffulta; semina irregulariter ovalia, circiter 1.5 mm. longa, flavo-brunnea, testa manifeste reticulata.

Western Szech'uan: without precise locality, alt. 1600–2300 m., July 1903 (Veitch Exped. No. 3927, type); Mupin, woodlands, October 1908 (No. **1192**).

This species is allied to *Clethra Delavayi* Franchet which is described as having cuneate-obovate leaves slightly scabrid above, solitary racemes, petals 8–12 mm. long, obovate and ciliate and longer than the stamens. *Clethra Fargesii* Franchet is distinguished chiefly by the leaves being less attenuate at the base,

by the very numerous racemes, smaller flowers, more acuminate sepals, differently shaped stamens and a glabrous style.

Clethra monostachya is found scattered through western Szech'uan, but is nowhere abundant and is confined to the margins of woods and thickets. It is more common on Mt. Omei than elsewhere.

Five new species (*Clethra Bodinieri, C. kaipoensis, C. Esquirolii, C. Cavaleriei, C. pinfaensis*) are described by H. Léveillé in Fedde *Rep. Nov. Sp.* X. 475 (1912) from the province of Kwei-chou, but in the absence of specimens it is quite impossible to identify them. Several of the descriptions might apply to *Clethra Fargesii* Franchet and to forms of that species. *Clethra Bodinieri* Léveillé would appear to have some relation to our new species, but is described as having leaves 2 cm. broad, petioles 1 cm. long, a glabrous style and an entire stigma.

Clethra Fargesii Franchet in *Jour. de Bot.* IX. 369 (1895). — Diels in *Bot. Jahrb.* XXIX. 507 (1900).

Clethra canescens Hemsley in *Jour. Linn. Soc.* XXVI. 33 (pro parte, non Reinwardt) (1889).

Western Hupeh: north and south of Ichang, thickets, alt. 1300–2300 m., July and August 1907 (No. **2222**, in part; bush 2–3 m. tall, flowers pure white); Changyang Hsien, thickets, alt. 1600–2000 m., July 1907 (No. **2222**, in part; bush 2–4 m. tall, flowers white); Fang Hsien, thickets, alt. 2500 m., August (No. **2222**, in part; bush 2–3 m., flowers white); without precise locality, July 1901 (Veitch Exped. No. 1326); without locality, *A. Henry* (Nos. 5818, 6407, 7270, 2838).

This beautiful shrub is very common in open woodlands and thickets. It is a more ornamental plant than *Clethra barbinervis* Siebold & Zuccarini, from which the lanceolate or lanceolate-elliptic leaves and ovate, acute or shortly acuminate, sepals easily distinguish it.

ERICACEAE.

Determined by ALFRED REHDER and E. H. WILSON.

RHODODENDRON L.

Subgen. I. LEPIDORHODIUM Koehne.

Leaves more or less lepidote, persistent, rarely deciduous. Ovary densely lepidote, 5-celled; stamens 5–10.

Sect. 1. POGONANTHUM G. Don.

Corolla salver-shaped, style and stamens enclosed in its tube, densely villose at the mouth; flowers terminal. Leaves glabrous and lustrous above, beneath densely covered with partly stipitate and overlapping scales.

Rhododendron cephalanthum Franchet in *Bull. Soc. Bot. France*, XXXII. 9 (1885); XXXIII. 234 (1886). — Hemsley in *Jour. Linn. Soc.* XXVI. 21 (1889).

Western Szech'uan: Ching-chi Hsien, uplands, Ta-pao-shan, alt. 2600–3100 m., September 15, 1908 (No. **3453**; bush 30–80 cm. tall, forming thickets, flowers white).

Very rare in Szech'uan, and only seen on the high mountains separating Wa-shan and Wa-wu-shan.

Our flowering specimens seem to differ at the first glance from the type by their depauperate inflorescence bearing only 2 or 3 flowers, but this may be accounted for by the fact that they represent a second flowering in September; the inflorescences with young fruits formed the previous spring, bear many capsules.

Rhododendron rufescens Franchet in *Jour. de Bot.* IX. 397 (1895).— Schneider, *Ill. Handb. Laubholzk.* II. 480, fig. 318 q (1909). — Hemsley & Wilson in *Kew Bull. Misc. Inform.* 1910, 117.

Western Szech'uan: west of Kuan Hsien, Pan-lan-shan, uplands, alt. 4100–4300 m., June 24, 1908 (No. **3455**; bush 0.5–1.25 m. tall, flowers white to bluish); without precise locality, alt. 3600–4000 m., June and October 1904 (Veitch Exped. No. 3930).

This is a rather uncommon alpine species, distinguished by its shining green leaves, red-brown below, large membranous, ciliolate calyx and non-lepidote corolla. The specimens before us differ from the original description in the leaves being oval or elliptic-oblong, but apparently they are not specifically different.

Rhododendron Sargentianum Rehder & Wilson, n. sp.

Frutex 30–60 cm. altus, ramosiosimus ramis erectis v. adscendentibus; ramuli hornotini et annotini fusco-tomentosi, tarde glabrescentes, vetustiores cinereo-fusci, cortice in lamellas tenues solubili et corticem interiorem flavido-cinereum detegente; gemmae parvae, ovoideae, acutae, perulis paucis acutis tomentosis ciliatis erectis et per plures annos persistentibus. Folia coriacea, aromatica, ovalia, obtusa et mucronulata, basi late cuneata, 8–15 mm. longa et 5–8 mm. lata, margine revoluta, supra initio lepidota, mox glabra, atroviridia, leviter rugulosa, subtus dense tomento sublepidota fusco-ferrugineo, initio flavido obtecta, costa media supra impressa subtus elevata, nervis secundariis obsoletis; petioli 2–4 mm. longi, lepidoti. Flores 6–12, terminales, umbellato-racemosi; pedicelli 5–7 mm. longi, flavido-lepidoti; bracteae pedicellis subaequilongae, oblongae, ciliatae, utrinque pubescentes, partim persistentes, calyx conspicuus, membranaceus, viridiflavus, lobis 5 oblongo-obovatis 3–4 mm. longis 1–1.5 cm. latis rotundatis sursum ciliatis extus lepidotis intus puberulis; corolla hypocrateriformis, albida v. pallide lutea, extus lepidota et sparse pubescens, tubo cylindrico 6–7 mm. longo intus villoso praesertim faucem versus, subito in limbum erecto-patentem ampliatum, lobis suborbicularibus 4–6 mm. longis et 5–7 mm. latis; stamina 5, plerumque tubo paullo breviora, filamentis circiter 4 mm. longis basi dilatatis glabris, antheris ovoideis ochraceis; ovarium subglobosum, circiter 1 mm. longum, dense flavido-lepidotum; stylus staminibus paullo brevior, glaber, sursum incrassatus, stigmate capitato. Capsula subglobosa, circiter 4 mm. longa, lepidota, 5-valvata, stylo persistente, basi calyce persistente suffulta; semina flavido-brunnea, nitida, ovoidea, 1 mm. longa, utrinque acuta, fere exalata.

Western Szech'uan: Mupin, growing on exposed rocks, alt. 3000–3600 m., June and October 1908 (Nos. **1208**, type, **3454**); same locality, alt. 4000–4300 m., October 1910 (No. **4237**); Washan, cliffs, 3300 m., July 1903 (Veitch Exped. No. 3933); without precise locality, October 1904 (Veitch Exped. No. 3931 and seed No. 1888).

This new species belongs to a small group which includes *R. anthopogon* D. Don, *R. anthopogonoides* Maximowicz, *R. rufescens* Franchet, *R. cephalanthum* Franchet and two or three other species from all of which it is readily distinguished by its lepidote corolla. All the species are very closely allied, having white or pale yellow flowers and are all strictly alpine plants. In this new species the longer pedicels and shorter bracts render the calyx more clearly visible than it is in other species.

Rhododendron trichostomum Franchet in *Jour. de Bot.* IX. 396 (1895). — Schneider, *Ill. Handb. Laubholzk.* II. 481 (1909).

Rhododendron fragrans Franchet, var. *parviflora* Franchet in *Bull. Soc. Bot. France*, XXXIV. 284 (1887).

Western Szech'uan: west of Tachien-lu, Tongolo, moorland thickets and heaths, alt. 3300–4300 m., June and September 1908 (No. 1328; bush 1–2 m. tall, flowers rose-pink); without precise locality, alt. 3500 m., June 1904 (Veitch Exped. No. 3929).

The size of the calyx varies considerably in this species as it does in all species in which the bud-scales and bracts subtending the flowers are persistent. The small, pale pink flowers readily distinguish this plant from its Chinese allies. It is, however, very closely allied to *R. fragrans* Maximowicz which has large, more rugulose leaves, larger flowers and a different calyx.

Sect. 2. Lepipherum G. Don (*Osmothamnus* Maxim).

Corolla funnelform to campanulate-rotate, stamens exceeding its tube; flowers terminal. Leaves densely lepidote on both surfaces except in Group e.

Group a.

Stamens slightly exceeding the tube, style shorter than the tube of the purple corolla, not villose at the mouth.

Rhododendron intricatum Franchet in *Jour. de Bot.* IX. 395 (1895). — Hemsley in *Gard. Chron.* ser. 3, XLI. 262, fig. 111 (1907). — Hemsley in *Bot. Mag.* CXXX. t. 8163 (1907). — Schneider, *Ill. Handb. Laubholzk.* II. 481, fig. 317 d–f (1909). — Hemsley & Wilson in *Kew Bull. Misc. Inform.* 1910, 118.

Rhododendron blepharocalyx Franchet in *Jour. de Bot.* IX. 396 (1895). — Schneider, *Ill. Handb. Laubholzk.* II. 481 (1909).
Rhododendron nigropunctatum Hort. in *Gard. Chron.* ser. 3, XLI. 225 (non Franchet) (1907). — *Jour. Hort.* ser. 3, LIV. 343, fig. (1907).

Western Szech'uan: north of Tachien-lu, Ta-p'ao-shan, moorlands, alt. 4000–5000 m., July 7, 1908 (No. 3466; bush 30 cm.–1 m. tall, flowers purple); grass lands around Tachien-lu, alt. 3600–5000 m., June 1904 (Veitch Exped. No. 3934).

This is a very common alpine shrub in the neighborhood of Tachien-lu. We find the characters on which *R. blepharocalyx* Franchet is founded are not constant. On specimens before us, flowers on the same branch have the calyx-lobes small, non-ciliolate, with marginal scales and sparingly ciliolate lobes with or without marginal scales; while others have very markedly ciliolate calyx-lobes. In size the calyx varies considerable even on the same shoot, as it does in all these

alpine species with crowded persistent bud-scales and bracts. A specimen from Hort. Veitch differs in having the style about one-half longer than the ovary, but shorter than the stamens.

Group b.

Stamens nearly as long as the corolla; style shorter than the stamens; corolla purple, more or less villose at the mouth; flowers solitary. Leaves less than 1 cm. long.

Rhododendron alpicola Rehder & Wilson, n. sp.

Frutex 0.30–1 m. altus, intricato-ramosus ramis brevibus erecto-patentibus; ramuli hornotini fusco-lepidoti; gemmae ovoideae obtusae, perulis paucis rotundatis in medio dorsi lepidotis ciliatis. Folia coriacea, congesta, ovata, rarius ovalia, obtusa, basi rotundata v. late cuneata, margine leviter revoluta, 5–8 mm. longa et 2–5 mm. lata, supra atroviridia et squamulis flavescentibus nitidulis dense obtecta, subtus squamulis pallide flavescenti-cinereis congestis densissime obtectis paucis fuscis intermixtis, costa nervisque obscuris; petioli fusco-lepidoti, 1–2 mm. longi. Flores solitarii, e gemma terminali orti, brevissime pedicellati, basi bracteis lineari-oblongis ciliatis suffulti; calyx cupularis, dense lepidotus, 5-lobus lobis inaequalibus, 1 v. 2 oblongis circiter 2 mm. longis sparse ciliolatis, reliquis minutis rotundatis; corolla infundibuliformis, circiter 1.5 cm. diam., violaceo-purpurea (" lavender-purple "), extus glabra; tubo 4 mm. longo intus ad faucem sparse villoso, lobis patentibus late ovatis v. obovatis, 8–10 mm. longis; stamina 10, subaequalia, corolla paullo breviora, filamentis gracilibus complanatis 7–9 mm. longis in trienti inferiore ima basi excepta villosis, antheris fulvis; ovarium conicum, circiter 2 mm. longum, dense squamulis virescenti-flavidis obtectum; stylus purpureus, rectus, staminibus brevior, 4 mm. longus, infra medium pilosus, stigmate capitato atropurpureo. Capsula ovoidea, circiter 4 mm. longa, dense lepidota, 5-valvata, ad basin dehiscens.

Western Szech'uan: north of Tachien-lu, Ta-p'ao-shan, moorlands, 4000–5000 m., July 7, 1908 (No. **3465**).

This species is perhaps most closely related to *R. ramosissimum* Franchet, which is distinguished by the rufous-brown color of the lower surface of the leaves, and by the different calyx and glabrous style. *Rhododendron thymifolium* Maximowicz differs in the oblong or obovate leaves, uniformly pale gray below, in its colored calyx deciduous from the fruit and apparently glabrous style.

Rhododendron alpicola, var. **strictum** Rehder & Wilson, n. var.

A typo differt habitu fastigato, floribus interdum 2 v. 3, bracteis

deciduis, calyce plerumque lobis omnibus ovatis subaequalibus 1.5 mm. longis, stylo glabro pallide purpureo.

Western Szech'uan: north of Tachien-lu, Ta-p'ao-shan, moorlands, 4300 m., July 7, 1908 (No. **3467**[a]).

Distinguished from the type chiefly by the more fastigiate habit, the nearly equal calyx-lobes and the glabrous style.

Rhododendron ramosissimum Franchet in *Jour. de Bot.* XII. 264 (1898).

Western Szech'uan: vicinity of Tachien-lu, moorlands, alt. 3600–4600 m., June, July and October 1908 (Nos. **3468, 3469**; bush 0.3–1 m., tall, flowers dark purple).

Our specimens differ from Franchet's description in the slightly pubescent mouth of the corolla-tube. In No. 3468 the leaves are often oblong-lanceolate; and the flowers are either solitary or in pairs. Franchet compares this species with his *R. intricatum;* to us it would appear more closely allied to *R. polycladum* Franchet.

Group c.

Stamens nearly as long as the corolla; style longer than the stamens; corolla pink or purple, more or less villose at the mouth; flowers solitary or few. Leaves obtuse or obtusish, generally about 1 cm. long.[1]

Rhododendron verruculosum Rehder & Wilson, n. sp.

Frutex 60–90 cm. altus, ramosissimus ramis erectis v. adscendentibus; ramuli hornotini breviter pilosi et lepidoti squamulis fuscis partim breviter stipitatis, vetustiores decorticantes; gemmae ovoideae, perulis paucis rotundatis extus in medio dorsi lepidotis ceterum minutissime puberulis albo-ciliatis. Folia coriacea, ovalia v. elliptico-ovata, apice rotundata, basi late cuneata v. rotundata, margine revoluta, 7–15 mm. longa et 5–8 mm. lata, supra atroviridia, squamulis flavidis lucidis conspersa, subtus squamulis non contiguis fuscis

[1] In this group also belongs the following species:

Rhododendron fastigiatum Franchet in *Bull. Soc. Bot. France,* XXXIII. 234 (1886). — Hemsley in *Jour. Linn. Soc.* XXVI. 23 (1889). — Hemsley & Wilson in *Kew Bull. Misc. Inform.* 1910, 117.

Rhododendron capitatum Franchet in *Bull. Soc. Bot. France,* XXXII. 9 (non Maximowicz) (1885).

Western Szech'uan: moorlands around Tachien-lu, alt. 3300 m., June 1904 (Veitch Exped. No. 3936). Shensi: Tai-pei-shan, alt. 3100 m., July 1910, *W. Purdom* (No. 440).

In No. 3936 the corolla is sparingly lepidote without. In both specimens some flowers have the style hairy near the base, in others it is glabrous.

conspersa plerumque flavidis nitidis paucis intermixtis, costa media supra leviter impressa subtus leviter elevata, nervis secundariis obscuris; petioli lepidoti, 1–2 mm. longi. Flores solitarii e gemma terminali orti; pedicelli dense lepidoti, 1–1.5 mm. longi; calyx cupularis, membranaceus, saepe coloratus, profunde 5-lobus, lobis subaequalibus ovatis v. rotundatis, 1–2 mm. longis extus lepidotis sat dense villoso-ciliatis; corolla infundibuliformis, purpurea v. atropurpurea, 2–2.5 cm. diam., 5-loba, tubo 4 mm. longa, intus ad faucem villoso, lobis elliptico-ovalibus rotundatis 8–10 mm. longis et circiter 5 mm. latis extus lepidotis; stamina 7 v. 8, corolla paullo breviora, filamentis purpureis, 7–8 mm. longis in triente inferiore ima basi excepta villosis, antheris ochraceis; ovarium conicum, circiter 1.5 mm. longum, dense lepidotum; stylus purpureus, glaber, 1–1.5 cm. longus, stigmate capitato atropurpureo. Capsula matura desideratur.

Western Szech'uan: west of Kuan Hsien, Niu-tou-shan, sunny places among rocks, alt. 3300 m., June 20, 1908 (No. 3464).

The pilose and stipitate-lepidote branchlets and the lepidote corolla-lobes distinguish this new species from all other members of its group. It is, perhaps, most closely related to *R. polycladum* Franchet; this has narrower acutish leaves, a different calyx and a glabrous like the branchlets only lepidote corolla.

Rhododendron Edgarianum Rehder & Wilson, n. sp.[1]

Frutex 0.30 1 m. altus, intricato-ramosus ramis brevibus divaricatis; ramuli hornotini dense rufo-lepidoti, vetustiores cinerei; gemmae subglobosae, perulis paucis rotundatis extus sparse lepidotis ciliatis. Folia coriacea, aromatica, congesta, late ovata v. late ovalia, utrinque rotundata, margine revoluta, 4–8 mm. longa et 3–5 mm. lata, supra dense squamulis flavidis nitidulis contiguis obtecta, subtus squamulis intense rufis contiguis et partim invicem sese tegentibus obtecta, costa et nervis secundariis obscuris; petioli dense lepidoti, 1–2 mm. longi. Flores solitarii e gemma terminali orti, subsessiles, perulis sub anthesi deciduis; calyx membranaceus, plerumque purpurasceus, rarius flavoviridis, profunde 5-lobus, lobis inaequalibus ovali-oblongis obtusis rarius acutiusculis 2–2.5 mm. longis et 1–1.5 mm. latis ciliatis infra medium plerumque lepidotis; corolla infundibuliformis, roseo-purpurea v. purpurea, tubo circiter 5 mm. longo intus ad faucem

[1] This species is named for the Rev. J. Hutson Edgar of the China Inland Mission (Thibetan branch) to whom I am indebted for much valued information and pleasant companionship in rambles round Tachien-lu. — E. H. W.

villoso, lobis patentibus late ovatis v. obovatis 6–10 mm. longis; stamina 8, subaequalia, corolla paullo breviora, filamentis 8–10 mm. longis in triente inferiore ima basi dilatata excepta villosis, antheris ochraceis; ovarium conicum, fere 2 mm. longum, dense lepidotum; stylus filiformis rectus, purpureus, 14–15 mm. longus, stamina superans, stigmate capitato atropurpureo. Capsula ovoidea, 5 mm. longa, lepidota, 5-valvata.

Western Szech'uan: north of Tachien-lu, Ta-p'ao-shan, forming heaths, alt. 4000–5000 m., July 7, 1908 (No. **3467**, type); vicinity of Tachien-lu, moorlands, alt. 3600–4600 m., June and October 1908 (Nos. **3459**, **1319**, in part).

This species is most closely allied to *R. polycladum* Franchet, which has narrower acute leaves, attenuate at the base and less densely scaly below, and a smaller calyx with two rotundate and three triangular lobes. *Rhododendron ramosissimum* Franchet, to which this new species is also closely related, differs in its foliage and short style. All the members of this group are very similar in general appearance and difficult to distinguish. The color, however, of the under surface of the leaves, due to the presence of lepidote glands, apparently affords a useful character for separating the species. The roundish leaves, rufous-brown below, and the membranous calyx distinguish this new species from its allies.

Rhododendron nitidulum Rehder & Wilson, n. sp.

Frutex 0.60–1.30 m. altus, ramosissimus ramis gracilibus erectis v. adscendentibus; ramuli hornotini dense fusco-lepidoti; gemmae ovoideae, perulis paucis rotundatis in medio dorsi lepidotis ceterum minutissime puberulis ciliolatis. Folia coriacea, ovalia v. ovata, rarius elliptico-ovata, obtusa et mucronulata v. interdum acutiuscula, basi rotundata v. late cuneata, 7–12 mm. longa et 5–7 mm. lata, supra atroviridia squamulis fere contiguis flavidis nitidulis obtecta, subtus pallide cinereo-fulva dense squamulis pallide fulvis fere contiguis nitidulis obtecta, costa media utrinque fere obsoleta, nervis secundariis obscuris. Flores solitarii v. rarius bini e gemma terminali orti, subsessiles, perulis persistentibus suffulti; calyx membranaceus, lepidotus, profunde 5-lobus, lobis plerumque subaequalibus, ovatis v. oblongo-ovatis, circiter 2 mm. longis, plerumque acutiusculis, apice sparse ciliati, extus lepidoti; corolla infundibuliformis, violaceo-purpurea, 2.5 cm. diam., tubo circiter 5 mm. longo intus ad faucem villoso, lobis patentibus ovalibus obovatis rotundatis circiter 1 cm. longis et 5–7 mm. latis; stamina 8–10, corollam fere aequantia, filamentis gracilibus 8–10 mm. longis in triente inferiore basi dilatata

excepta villosis, antheris ochraceis; ovarium conicum, circiter 2 mm. longum, dense lepidotum; stylus purpurascens, stamina superans, glaber, 1.5 cm. longus, stigmate capitato saepe lobato. Capsula matura desideratur.

Western Szech'uan: Mupin, uplands, alt. 3300–4000 m., June 1908 (No. **3458**).

Very closely allied to *Rhododendron polycladum* Franchet, which differs chiefly in its narrower elliptic-oblong leaves narrowed at both ends and in the darker brown scales on their under side. The specific name refers to the conspicuous glistening gland-like center of the scales on both sides of the leaves.

Rhododendron nitidulum, var. **nubigenum** Rehder & Wilson, n. var.

Frutex 10–35 cm. altus, ramosissimus ramis erectis v. adscendentibus brevibus; ramuli hornotini dense fusco-lepidoti; gemmae ovoideae, obtusae, perulis paucis, inferioribus mucronatis, in medio dorsi dense lepidotis ceterum minutissime puberulis purpurascentibus margine albo-ciliolatis. Folia coriacea, in apice ramulorum congesta, aromatica, ovalia, obtusa v. acutiuscula, basi late cuneata, 4–8 mm. longa et 3–5 mm. lata, supra atroviridia, dense glandulis flavidis nitidulis conspersa, subtus densissime lepidota squamulis flavido-fuscis, costa supra leviter impressa subtus obsoleta, nervis secundariis evanidis; petioli dense fusco-lepidoti, 1–2 mm. longi. Flores solitarii v. bini e gemma terminali orti, subsessiles; calyx variabilis, plerumque coloratus, membranaceus, profunde 5-lobus, lobis ovatis 2–4 mm. longis saepe inaequalibus dorso sparse lepidotis margine ciliatis; corolla infundibuliformis, roseo-lilacina, extus glabra, circiter 2 cm. diam., tubo 4–5 mm. longo intus ad faucem dense villoso, lobis ovatis v. obovatis rotundatis 8–10 mm. longis et circiter 5 mm. latis, stamina 10, corollam subaequantia, filamentis 10–12 mm. longis infra medium villosis basi complanatis et glabris, antheris ochraceis; ovarium conicum 2 mm. longum, dense lepidotum; stylus circiter 12 mm. longus, stamina superans, purpureus, glaber, stigmate capitato atropurpureo. Capsula ovoidea, 5 mm. longa, obtusa, lepidota, 5-valvata.

Western Szech'uan: vicinity of Tachien-lu, moorlands, alt. 4300–5000 m., July 1908 (No. **3461**, type); same locality, 1903 (Veitch Exped. No. 3935).

This variety differs from the type chiefly in its lower habit, smaller leaves, darker brown beneath and larger, usually colored, calyx. It is the most alpine of all the Rhododendrons known from the neighborhood of Tachien-lu.

Rhododendron violaceum Rehder & Wilson, n. sp.

Frutex 0.3–1.3 m. altus, ramosissimus, saepe fastigatus ramis erectis; ramuli annotini dense fusco-lepidoti; gemmae ovoideae, obtusae, pallide brunneae, perulis paucis rotundatis mucronulatis in medio dorsi lepidotis ceterum minutissime puberulis ciliolatis. Folia coriacea, ovalia v. oblonga, obtusa, rarius acutiuscula, basi late cuneata, margine leviter revoluta, 5–12 mm. longa et 3–5 mm. lata, supra atroviridia, dense lepidota, subtus dense lepidota squamulis flavescentibus v. pallide fuscis contiguis fuscis v. atrofuscis intermixtis, costa media supra leviter impressa subtus leviter elevata, nervis secundariis evanidis; petioli dense lepidoti, 2–3 mm. longi. Flores 1–3, e gemma terminali orti, subsessiles; perulae plerumque deciduae; calyx cupularis, 5-partitus, lobis inaequalibus ovatis v. rotundatis 0.5–2 mm. longis extus lepidotis apice ciliatis in margine laterali lepidotis saepe scariosis; corolla infundibuliformis, violaceo-purpurea, circiter 2 cm. diam., extus glabra, 5-loba, tubo 4–5 mm. longo, intus ad faucem villoso, lobis patentibus ovalibus v. obovatis rotundatis 7–9 mm. longis; stamina 10, corollam subaequantia, filamentis 9–12 mm. longis, in triente inferiore ima basi dilatata excepta villosis, antheris pallida fuscis; ovarium conicum, 1.5–2 mm. longum, dense lepidotum; stylus stamina superans, 10–12 mm. longus, glaber, purpureus, stigmate capitato atropurpureo. Capsula ovoidea, circiter 5 mm. longa, lepidota, usque ad basin in 5 valvas fissa.

Western Szech'uan: west of Kuan Hsien, Pan-lan-shan, moorlands, alt. 4100–4500 m., June 24, 1908 (Nos. **3463**, type, **3460**); same locality, October 1910 (No. **4269**).

This species is related to *R. polycladum* Franchet, which is readily distinguished by its thinner leaves tapering to the ends and uniformly colored with rufous-brown, lepidote not contiguous scales on the under surface, more numerous flowers (3–5) and different calyx.

In the type specimens the flowers are all solitary and the bud-scales early deciduous; in No. 3460 the flowers are frequently in clusters of twos and threes with persistent bud-scales.

Rhododendron Websterianum Rehder & Wilson, n. sp.

Frutex 0.30–1 m. altus, ramosissimus, fastigatus, ramis erectis v. suberectis; ramuli hornotini, cinereo- v. rufescenti-lepidoti, vetustiores sordide cinerei; gemmae ovoideae, perulis paucis rotundatis in medio dorsi lepidotis sparse ciliatis. Folia coriacea, congesta, ovata v. elliptica, rarius elliptico-oblonga, obtusa, basi plerumque late cuneata, margine leviter revoluta, 6–15 mm. longa et 3–9 mm.

lata, supra atroviridia squamulis albidis dense obtecta, subtus albido-cinerea, squamulis pallidis congestis obtecta, costa media supra leviter impressa subtus leviter elevata, nervis secundariis obscuris; petioli dense fuscescenti-lepidoti, 2–3 mm. longi. Flores plerumque solitarii, rarius 2 v. 3 e gemme terminali orti; pedicelli circiter 2 mm. longi, lepidoti, perulis occultati; calyx magnitudini variabili, membranaceus, plerumque purpurascens, interdum flavo-virens, profunde 5-lobus, lobis plerumque subaequalibus ovatis v. rotundatis 2–5 mm. longis et 1.5–3 mm. latis apice rotundatis plerumque sparse ciliatis in media dorsi lepidotis; corolla infundibuliformis, roseo-purpurea, 2.5–3 cm. diam., tubo 6–7 mm. longo intus ad faucem villoso, lobis late ovatis v. suborbicularibus 10–12 mm. longis et circiter 10 mm. latis; stamina 10, subaequalia, corolla paullo breviora, filamentis 12.15 mm. longis complanatis in triente inferiore ima basi excepta villosis, antheris fulvis; ovarium conicum, 2 mm. longum, dense lepidotum squamulis viridi-cinereis; stylus stamina superans, 1.3–1.5 cm. longus, rubescens, glaber v. sparse lepidotus, interdum infra medium sparse pilosus, stigmate capitato atropurpureo. Capsula ovoidea, 4–5 mm. longa, calyce persistente circumdata, dense lepidota, 5-valvata; semina ovalia, circiter 1 mm. longa, fere exalata.

Western Szech'uan: Tachien-lu, moorlands, alt. 3300–4300 m., June and October 1908 (No. **1225**, type); north of Tachien-lu, Ta-p'ao-shan, alt. 4100–4900 m., July 7, 1908 (No. **3462**).

Closely related to *Rhododendron polifolium* Franchet, which differs chiefly in its narrower, generally oblong leaves and smaller calyx, which does not exceed 2 mm. in length. From the preceding species of this group it is easily distinguished by the uniformly grayish white color of the densely lepidote under side of the leaves.

We take much pleasure in naming this species for Mr. Frank G. Webster of Boston, as a slight mark of appreciation of his constant generosity to the Arnold Arboretum and of his invaluable help in the arrangement of its Chinese expeditions.

Group d.

Flowers like those of the preceding group, but yellow. Leaves somewhat larger with scattered scales beneath, more densely lepidote above.

Rhododendron flavidum Franchet in *Jour. de Bot.* IX. 395 (1895).— Hemsley in *Bot. Mag.* CXXXVI. t. 8326 (1910). — Hemsley & Wilson in *Kew Bull. Misc. Inform.* 1910, 117. — Schneider, *Ill. Handb. Laubholzk.* II. 1045, fig. 614 c–d (1912).

Rhododendron primulinum Hemsley in *Gard. Chron.* ser. 3, XLVII. 4, 229, fig. 101 (1910).

Western Szech'uan: north of Tachien-lu, moorlands, alt. 3600–4000 m., July 7, 1908 and September 1908 (No. **1202**; bush 1–2 m. tall, flowers pale yellow); without precise locality, alt. 3600–4300 m., June 1904 (Veitch Exped. No. 3932 and seed No. 1773).

Common in alpine regions around Tachien-lu. The flowers vary from pale primrose-yellow to clear yellow; the calyx varies in size, and the degree of pubescence on the style and stamens is also variable.

Rhododendron flavidum, var. **psilostylum** Rehder & Wilson, n. var.

A typo recedit foliis latioribus obscure viridibus saepius ovalibus, calyce minore, corolla extus sparsissime lepidota, stylo glabro, capsula minore, 5–6 mm. longo.

Western Szech'uan: west of Kuan Hsien, summit of Niu-tou-shan, on rocks exposed to sun, alt. 3300 m., June 20, 1908 (No. **3452**).

This variety differs from the type in its duller green leaves, lepidote flowers smaller calyx, glabrous style, smaller and more globose fruit. Notwithstanding these marked differences we cannot consider it other than as a variety of *R. flavidum* Franchet.

Group e.

Stamens exceeding the corolla; flowers small, white, on slender pedicels in many-flowered, dense racemes. Leaves acute, 2–3 cm. long, glabrous or nearly so above, sparingly lepidote beneath.

Rhododendron micranthum Turczaninow in *Bull. Soc. Nat. Mosc.* 1837, No. VII. 155. — De Candolle, *Prodr.* VII. 727 (1838). — Turczaninow, *Fl. Baical. Dahur.* II. Pt. 2, 208 (1856). — Maximowicz in *Mém. Acad. Sci. St. Pétersbourg*, sér. 7, XVI. No. IX. 18, t. 4, fig. 1–10 (1870). — Franchet in *Nouv. Arch. Mus. Paris*, sér. 2, VI. 77 (*Pl. David.* I. 197) (1883). — Hemsley in *Jour. Linn. Soc.* XXVI. 27 (1889). — Chipp in *Bot. Mag.* CXXIV. t. 8198 (1908). — Schneider, *Ill. Handb. Laubholzk.* II. 475, fig. 316 g. (1909). — Hemsley & Wilson in *Kew Bull. Misc. Inform.* 1910, 117. — Pampanini in *Nuov. Giorn. Bot. Ital.* n. ser. XVII. 683 (1910).

Rhododendron Rosthornii Diels in *Bot. Jahrb.* XXIX. 509 (1900).
Rhododendron Pritzelianum Diels in *Bot. Jahrb.* XXIX. 510 (1900).

Western Hupeh: Hsing-shan Hsien, cliffs, alt. 1600–2000 m., June and November 1907 (No. **660**; bush 1.5–2 m. tall, flowers white); without locality, May 1900 (Veitch Exped. No. 1526); Mt. Triora, September 1907, *C. Silvestri* (No. 1703). Western Szech'uan: west and near Wên-ch'uan Hsien, thickets, alt. 2000–2600 m., July and October 1908 (No. **1200**; bush 1–2 m. tall, flowers white); same locality,

cliffs, alt. 3000 m., October 1910 (No. **4262**; bush 1–1.5 m. tall); Lifan Ting, thickets, alt. 2500 m., November 1908 (No. **1320**; bush 2.5 m. tall); Tsaku-lao-ch'u-shin-kou, *A. von Rosthorn* (No. **2556**); without precise locality, *A. von Rosthorn* (Nos. **2147, 2146, 2545, 2162**). Shensi: Tai-pei-shan, 1910, *W. Purdom* (No. 2); Thui-kio-san, October 1897 and Si-ku-tzui-stan, 1895, *G. Giraldi*; various localities, *Hugh Scallan*. Chili: Weichang, 1909, *W. Purdom* (Nos. 50, 55).

This pretty and well-marked species although it has a remarkably wide distribution exhibits very little variation. With the number of specimens before us we cannot separate *R. Rosthornii* Diels and *R. Pritzelianum* Diels as distinct species or even as varieties. The slight differences in size of calyx-teeth and in color of anthers are of no value. Specimens from northern Chili show these same slight variations.

Rhododendron longistylum Rehder & Wilson, n. sp.

Frutex 0.5–2 m. altus ramis gracilibus; ramuli hornotini sparsissime lepidoti, apicem versus puberuli, annotini flavido-fusci v. pallide purpureo-fusci, vetustiores cinerascentes; gemmae ovoideae, perulis apice obtusiusculis v. rotundatis mucronatis extus minute puberulis sparse lepidotis ciliolatis. Folia coriacea, oblanceolata v. oblongo-lanceolata, rarius elliptico-oblongis, acuta v. brevissime acuminata, basi cuneata, 2.5–6 cm. longa et 1–2 cm. lata, supra luteo-viridia, nitidula, leviter rugulosa, sparsissime lepidota v. glabra, subtus pallidiora, sparse lepidota, costa media supra impressa subtus elevata, nervis utrinsecus 6–10 supra leviter impressis indistinctis subtus obsoletis; petioli 2–4 mm. longi, puberuli, interdum fere glabri, sparsissime lepidoti. Flores 10–20 v. plures, umbellato-racemosi, rhachi circiter 1 cm. longa; pedicelli 8–15 mm. longi, sparse glanduloso-lepidoti; calyx membranaceus, sparsissime lepidotus, lobis 5 interdum sparsissime longe ciliatis ovalibus circiter 2 mm. longis (in specimine fructifero ad 5 mm. longis et oblongis); corolla (paucae defloratae tantum visae) infundibuliformis, 1.3–1.5 longa ac lata, glabra, lobis 5 ovalibus 6–8 mm. longis obtusis; stamina 6–10, exserta, filamentis 1.5–2 cm. longis infra medium villosis, antheris ovoideis ochraceis; ovarium ovoideum, lepidotum; stylus valde exsertus, 2.5–3 cm. longus, gracilis, glaber, stigmate discoideo lobato. Capsula conica, 8–9 mm. longa et 5 mm. diam., apice truncata, lepidota, calyce persistente suffulta; semina flavida, oblonga, 1–1.5 mm. longa, utrinque breviter alata.

Western Szech'uan: west and near Wên-ch'uan Hsien, thickets, alt. 2300 m., July and October 1908 (No. **1204**, type); same locality,

November 1908 (No. 1329); Shih-ch'uan Hsien, on cliffs in full sun, alt. 1000–1300 m., August 1910 (No. 4726).

A pretty species allied to *R. micranthum* Turczaninow, which has rather different, much more lepidote foliage, smaller, differently shaped flowers, a very small calyx, a pistil not exceeding the stamens in length and slender, elongate capsules. Our material is in ripe fruit with a few old flowers. The great length of the pistil is most remarkable. This new species occurs on scrub-clad rocky slopes where it is fully exposed to the sun.

Sect. 3. Rhodorastrum Maxim.

Flowers from terminal and axillary buds usually crowded at the end of the branches; corolla mostly funnelform, pink or yellow; style and stamens exserted. Leaves sparingly lepidote, or glabrous above, 2–8 cm. long.

Rhododendron Davidsonianum Rehder & Wilson, n. sp.[1]

Frutex 1–3-metralis; ramuli sparse lepidoti, saepe initio glaucescentes; gemmae ovoideae, acutiusculae, perulis ovatis obtusis v. apiculatis ciliatis dorso lepidotis. Folia chartacea v. tenuiter coriacea, elliptica v. oblonga, rarius lanceolata, acuta, rarius breviter acuminata, apiculata, basi cuneata, 2.5–6 cm. longa et 1–2 cm. lata, margine leviter recurvata, supra laete viridia, nitentia, sparsissime lepidota, subtus glaucescentia squamulis fulvescentibus nitidulis non contiguis dense conspersa, nervis indistinctis, costa media supra leviter impressa interdum puberula subtus elevata; petioli glabri, circiter 5 mm. longi. Flores in umbellis 1–3 terminalibus et axillaribus in apice ramulorum congestis plurifloris, bracteis caducis; pedicelli sparse v. sparsissime lepidoti, 1–1.5 cm. longi; calyx minutus, lobis rotundatis lepidotis saepe sparse ciliatis; corolla campanulato-infundibuliformis, 2.5–3 cm. longa ac lata, rosea, glabra, ad medium 5-loba, tubo circiter 1.5 longo e basi sensim ampliato intus glabro, lobis ovato-ellipticis circiter 1.5 longis et 8–10 mm. latis rotundatis; stamina paullo exserta, filamentis filiformibus ad basim villosis et complanatis, antheris oblongis circiter 2.5 mm. longis ochraceis; stylus stamina superans, 2.8–3.5 cm. longus, glaber, stigmate applanato purpureo; ovarium 4–5 mm. longum, dense lepidotum, basi et apice pilosum. Capsula cylindrica, 10–12 mm. longa, 3–4 mm. lata, sulcata, sparse lepidota; semina flavo-brunnea, ovoidea, acuta, circiter 1 cm. longa.

[1] Named for Dr. W. Henry Davidson, of the Friends Foreign Mission, at Chengtu Fu, western Szech'uan, in grateful recognition of the important services which he rendered to me after my serious accident in the early autumn of 1910.
E. H. W.

Western Szech'uan: south-east of Tachien-lu, thickets, alt. 2000–2500 m., May and October 1908 (No. **1275**, type); same locality, margins of woods, alt. 2300 m., June and October 1908 (No. **1274**); same locality, thickets and woodlands, alt. 3000–3300 m., October 1910 (Nos. **4280**, **4239**); vicinity of Tachien-lu, on cliffs, alt. 2300–3000 m., September and October 1908 (Nos. **1223**, **1276**); same locality, alt. 2100–3300 m., July 1903 and 1904 (Veitch Exped. Nos. 3947, 3950 and seed No. 1535); Ching-chi Hsien, Ta-hsiang-ling, thickets, alt. 2000–2500 m., May and October 1908 (No. **1352**); Ching-chi Hsien, Fei-yueh-ling, thickets, alt. 2000–2600 m., May 25, 1908 (No. **3426**).

This species is closely allied to *R. chartophyllum* Franchet, which differs chiefly in its oblong or narrowly lanceolate leaves, very sparsely lepidote below, longer pedicels and larger flowers. We hesitated in making this a distinct species until, through the courtesy of the Director of the Royal Gardens at Kew, we received a specimen of Franchet's species from a cultivated plant. Our new species is also growing at Kew, where the two plants look decidedly different. Hemsley & Wilson (in *Kew Bull. Misc. Inform.* 1910, 115) refer Nos. 3947 and 3950 to *R. rigidum* Franchet and *R. siderophyllum* Franchet, respectively. The specimens in this herbarium under those numbers have certainly nothing to do with these species.

Rhododendron Davidsonianum is a very common plant in exposed sunny situations in the vicinity of Tachien-lu and we suspect the specimens collected in that neighborhood by Soulié and referred by Franchet (*Jour. de Bot.* 1895, 398) to *R. chartophyllum* Franchet belong here. The species is very floriferous, the mass of flowers almost hiding the small, neat foliage. No. 3426 has leaves up to 8 cm. long and the shoots appear very vigorous.

Rhododendron racemosum Franchet in *Bull. Soc. Bot. France* XXXIII. 235 (1886). — Hemsley in *Jour. Linn. Soc.* XXVI. 28 (1889). — Watson in *Garden*, XLII. 320, t. (1892). — Hooker f. in *Bot. Mag.* CXIX. t. 7301 (1893). — Bean in *Flora & Sylva*, III. 165 (1905). — Rehnelt in *Gartenfl.* LVII. 561, fig. 67, t. 1577, fig. 1 (1908). — Hemsley & Wilson in *Kew Bull. Misc. Inform.* 1910, 120. — Forest in *Gard. Chron.* ser. 3, XLVII. 343, fig. 147 (1910).

Rhododendron racemosum, var. *rigidum* Rehnelt in *Gartenfl.* LVII. 561, fig. 68, t. 1577, fig. 3–4 (1908).

Western Szech'uan: Ching-chi Hsien, Ta-hsiang-ling, thickets, alt. 2000–2600 m., May 16, 1908 (No. **3428**; bush 2 m. tall, flowers pale rosy-pink).

This plant is very rare in Szech'uan, but is abundant in north-western Yunnan.

Rhododendron lutescens Franchet in *Bull. Soc. Bot. France*, XXXIII. 235 (1886); in *Nouv. Arch. Mus. Paris*, sér. 2, X. 52 (*Pl.*

David. II. 90) (1888). — Hemsley & Wilson in *Kew Bull. Misc. Inform.* (1910) 114.

Rhododendron costulatum Franchet in *Jour. de Bot.* IX. 309 (1895).

Western Szech'uan: Mupin, thickets, alt. 2000–2600 m., October 1908 (No. **1195**, in part; bush 2 m. tall); Ching-chi Hsien, Ta-hsiang-ling, thickets, alt. 2000–2600 m., October 1908 (No. **1195**, in part; bush 1.5 m. tall); Ching-chi Hsien, Ta-hsiang-ling, alt. 1600–2000 m., May and November 1908 (No. **1197**[a]; bush 1–2 m. tall, flowers yellow); west and near Wên-ch'uan Hsien, thickets, alt. 2000–2600 m., July and September 1908 (No. **1199**; bush 1–2 m. tall); Wa-shan, woodlands, alt. 2000 m., June and October 1908 (No. **1345**; bush 2.5–3 m. tall, flowers yellow); south-east of Tachien-lu, thickets, alt. 2000–2600 m., October 1910 (No. **4277**; bush 2.5–4 m. tall); without precise locality, alt. 2600–3000 m., May 1904 (Veitch Exped. 3939); without locality, *A. Henry* (No. 8862).

This species is very common in thickets and margins of woods fully exposed to the sun, and is one of the earliest of all the Rhododendrons to open its flowers. It varies considerably in the size and texture of the leaves, and in the number of the flowers and stamens. With the material before us we cannot maintain Franchet's *R. costulatum* as a distinct species or even as a variety. The leaves are always long-acuminate; the inflorescence is normally lateral and one-flowered, but occasionally two or more flowers develop in each fascicle.

Sect. 4. Lepidota Maxim.

Flowers from terminal buds; corolla campanulate or funnelform, rather large, 3–4 cm. diam.; smaller in *R. Hanceanum*. Leaves sparingly lepidote, sometimes hairy, 2–7 cm. long, rarely only 1 cm. long.

Group a.

Leaves only lepidote. Flowers yellow.

Rhododendron Hanceanum Hemsley in *Jour. Linn. Soc.* XXVI. 24 (1889). — Hemsley & Wilson in *Kew Bull. Misc. Inform.* 1910, 115.

Western Szech'uan: Mupin, cliffs and thickets, alt. 2600–3000 m., June and September 1908 (Nos. **3413**, **882**; bush 1 m. tall, flowers clear yellow); Ching-chi Hsien, rocky places, alt. 2800–3000 m., September 15, 1908 (No. **882**[a]; bush 1 m. tall, forming thickets); Mupin, alt. 2600–3000 m., October 1910 (No. **4255**; bush 30–90 cm. tall).

This species is locally very common, forming dense dwarf thickets. The leaves vary from obovate to lanceolate or lanceolate-ovate, from shining to dull green above, and are densely or sparsely lepidote.

Rhododendron ambiguum Hemsley in *Bot. Mag.* CXXXVII. t. 8400 (1911). — Schneider, *Ill. Handb. Laubholzk.* II. 1043, fig. 615 a–c (1912).

Western Szech'uan: south-east of Tachien-lu, on rocks in woods, alt. 3000–3300 m., June and October 1908 (Nos. **1324**, **1324**[a], **1324**[b]; bush 1–2 m. tall, flowers yellow); Mupin, woodlands, alt. 2600–3000 m., June and October 1908 (No. **1324**[c]; bush 1–2 m. tall, flowers yellow); south-east of Tachien-lu, woods, alt. 3000–3300 m., June and October 1908 (Nos. **1330**, **1330**[a]; bush 1–2.5 m. tall, flowers yellow); Tachien-lu, thickets, alt. 2600–3300 m., October 1910 (No. **4240**; bush 1–3 m. tall); Mt. Omei, thickets, alt. 2300–3000 m., October 1910 (No. **4252**; bush 2.5–4 m. tall); Mupin, thickets, alt. 2300–2800 m., October 1910 (No. **4265**; bush 2–3 m. tall); without precise locality, alt. 2600–3300 m., May 1904 (Veitch Exped. No. 3943); Mt. Omei, June 1904 (Veitch Exped. No. 5144); near Tachien-lu, alt. 3000–4500 m., *A. S. Pratt* (No. 848).

The undescribed fruit of this species is cylindrical, 1–1.5 cm. long, 4–5 mm. wide, furrowed, often slightly curved, lepidote.

This yellow flowered species is very abundant in thickets and rocky, exposed places throughout the regions mentioned above. Apart from the color of the flowers there is very little to distinguish it from *R. yanthinum* Bureau & Franchet, which has, however, leaves usually more brownish below and slightly more slender fruits. Hemsley & Wilson (*Kew Bull. Misc. Inform.* 1910, 115) refer Pratt's No. 848 to *R. concinnum* Hemsley, but the flowers are obviously yellow in color.

Group b.

Leaves only lepidote. Flowers purple.

Rhododendron yanthinum Bureau & Franchet in *Jour. de Bot.* V. 94 (1891).

Rhododendron Benthamianum Hemsley in *Kew Bull. Misc. Inform.* 1907, 319; in *Gard. Chron.* ser. 3, XLVII. 4 (1910). — Hemsley & Wilson in *Kew Bull. Misc. Inform.* 1910, 115.

Rhododendron concinnum Hemsley & Wilson in *Kew Bull. Misc. Inform.* 1910, 115 (non Hemsley).

Rhododendron atroviride Dunn in *Jour. Linn. Soc.* XXXIX. 484 (1911).

Western Szech'uan: Mupin, alt. 2000–2300 m., June and October 1908 (No. **1196**; bush 1–2.5 m. tall, flowers purple); same locality, thickets, alt. 1600–2500 m. (No. **3447**; bush 1–2 m. tall, flowers

purple); north of Tachien-lu, Ta-p'ao-shan, alt. 2600–3600 m., July 9, 1908 (No. **1196**[a]; bush 2–3 m. tall, flowers purple); south-east of Tachien-lu, woodlands, alt. 3000–3300 m., September 1908 (No. **1201**; bush 1–2 m. tall); near Tachien-lu, alt. 3000 m., June 1908 (No. **3411**; bush 1–4 m. tall, flowers dark purple); same locality, woods, alt. 2600–3000 m., October 1910 (No. **4236**; bush 1.5–3 m. tall); without precise locality, alt. 2600–3000 m., May and October 1904 (Veitch Exped. No. 3942 and seed Nos. 1766, 1879). Western Hupeh: Fang Hsien, thickets, alt. 1600–2300 m., May 27, 1907 (No. **3456**; bush 1–2 m. tall, flowers white to rosy-purple); Changyang Hsien, cliffs, alt. 1600 m., April 1907 (No. **3456**[a]; bush 2 m. tall); without precise locality, May 1900 (Veitch Exped. No. 1969). Shensi: without precise locality, 1910, *W. Purdom* (No. 1).

This is a very common species in the margins of woods and thickets throughout western Szech'uan. It is comparatively rare in Hupeh where it shows a slight variation from the typical form, the leaves being rather thinner and usually longer. In No. 1196[a] the corolla is slightly pubescent on the outer surface. Hemsley & Wilson reduced this species to *R. concinnum* Hemsley, which has, however, a different shaped corolla and usually hairy style.

We think it best to keep the two as distinct species, though their relationship is very close. Much confusion has already arisen in regard to this species, as the synonyms show. In the fruiting stage it is very difficult to distinguish it from *R. ambiguum* Hemsley which has, however, usually stouter capsules and leaves more glaucescent below.

Rhododendron yanthinum, var. **lepidanthum** Rehder & Wilson, n. var.

A typo recedit corolla extus sparse basim versus densius albido-villosa et flavo-lepidota atropurpurea, calyce densissime flavo-lepidoto.

Western Szech'uan: west and near Wên-ch'uan Hsien, thickets, alt. 2500 m. July 1908 (No. **3419**, type); west of Kuan Hsien, Pan-lan-shan, margins of woods, alt. 2600–3000 m., October 1910 (Nos. **4041**, **4241**, in part).

This variety is distinguished from the type by the markedly villose outer surface of the corolla and by the deeper colored, handsomer flowers. We at first thought this a distinct species until we found amongst the typical *R. yanthinum* Franchet a specimen having the corolla very sparsely pubescent on the outer surface.

This variety is local but fairly common throughout the regions mentioned above.

Rhododendron bracteatum Rehder & Wilson, n. sp.

Frutex 1–2-metralis; ramuli graciles, hornotini purpurei, sparse lepidoti, annotini brunnei, vetustiores fusco-cinerei v. flavido-cinerei; gemmae floriferae globoso-ovoideae, perulis paucis rotundatis mucro-

nulatis minute puberulis sparse lepidotis ciliolatis. Folia tenuiter coriacea, in apice ramulorum congesta, oblonga, apice obtusa, mucrone incrassato instructa, basi rotundata v. late cuneata, supra atroviridia, initio sparsissime lepidota, demum glabra, leviter rugulosa, subtus pallidiora, lepidibus fulvis nitidis conspersa nigrescentibus interspersa, costa media supra impressa subtus elevata, nervis secundariis obsoletis; petioli purpurascentes, 8–14 mm. longi, lepidoti, in parte inferiore ramulorum folia ad bracteas lineares v. spathulato-lineares 6–15 mm. longas per plures annos persistentes reducta. Flores 3–6 v. plures, subumbellati; pedicelli graciles, 1.8–2.5 cm. longi, sparsissime lepidoti; bracteae cito caducae; calyx cupularis, parvus, lobis inaequalibus rotundatis 1–2 mm. longis margine sparse lepidotis; corolla late campanulata, 2–2.5 cm. longa et 2.5–3 cm. lata, alba, rubro-maculata, extus sparsissime lepidota, tubo intus villoso, lobis ovalibus obtusis 1–1.2 cm. longis; stamina 10, inaequalia, longiora corolla paullo breviora, filamentis complanatis infra medium villosis, antheris ochraceis; ovarium cylindricum, 4 mm. longum, dense lepidotum; stylus basi sparsissime villosus, 1 cm. longus, staminibus longioribus paullo brevior, apicem versus sensim incrassatus, stigmate truncato leviter lobato. Capsula cylindrica, saepe leviter curvata, 1–1.5 cm. longa, sulcata, dense lepidota, valvis 5; semina luteo-brunnea, 1.5–2 mm. longa, utrinque acuta, exalata.

Western Szech'uan: west and near Wên-ch'uan Hsien, woodlands, alt. 3300 m., July 1908 (No. **3421**, type); Mupin, cliffs, alt. 2600–3000 m., October 1910 (No. **4253**).

This pretty species seems most closely related to *R. yanthinum* Franchet, but it can at once be distinguished from this and all allied species by the persistent bracts which take the place of leaves on the lower part of the young branches.

Rhododendron apiculatum Rehder & Wilson, n. sp.

Frutex 1.5 m. altus, ramis gracilibus, ramulis hornotinis glabris. Folia coriacea, ovalia, subito breviter acuminata, basi truncata v. subcordata, 3–5 cm. longa et 2–3.2 cm. lata, supra laete viridia, glabra, subtus pallidiora, brunneo-lepidota, costa media supra vix impressa subtus elevata, nervis utrinsecus 8–10 supra leviter elevatis subtus obsoletis; petioli 6–8 mm. longi, sparse lepidoti. Flores 2–3, subumbellati; pedicelli 7–10 mm. longi, sparsissime lepidota; calyx cupularis, lobis inaequalibus triangularibus v. rotundatis vix 1 mm. longis lepidotis; corolla infundibuliformi-campanulata, atropurpurea, 3–3.5 cm. longa et 3.5–3.8 cm. diam., tubo basi fere cylindrico circiter 1.5 cm.

longo subito in limbum patentem ampliato extus glabro intus sparse villoso, lobis late ovatis obtusis 1.3–1.5 cm. longis; stamina 10, inaequalia, longiora corollam aequantia v. ea paullo breviora, filamentis complanatis infra medium sparse villosis, antheris ochraceis; ovarium conicum, circiter 5 mm. longum, dense lepidotum; stylus leviter curvatus, glaber, 3 cm. longus, corollam paullo superans, stigmate paullo incrassato leviter lobato atropurpureo. Capsula desideratur.

Western Szech'uan: west and near Wên-ch'uan Hsien, thickets and margins of woods, alt. 2500–3000 m., July 1908 (No. **3422**).

This species is allied to *R. yanthinum* Bureau & Franchet which has verruculose branchlets, leaves lepidote on both surfaces and a rather differently shaped corolla sparsely lepidote on the outer surface.

Rhododendron polylepis Franchet in *Bull. Soc. Bot. France*, XXXIII. 232 (1886); in *Nouv. Arch. Mus. Paris*, sér. 2, X. 50 (*Pl. David.* II. 88) (1887). — Hemsley & Wilson *Kew Bull. Misc. Inform.* 1910, 115.

Rhododendron Harrovianum Hemsley in *Gard. Chron.* XLVII. 4 (1910); in *Bot. Mag.* CXXXVI. t. 8309 (1910). — Schneider, *Ill. Handb. Laubholzk.* II. 1043, fig. 615 h–i (1912).

Western Szech'uan: west and near Wên-ch'uan Hsien, cliffs, alt. 2500 m., June and October 1908 (No. **1205**; bush 2–2.5 m. tall, flowers purple); Tachien-lu, thickets, alt. 3000 m., June and October 1908 (No. **1207**[a]; bush 1–3 m. tall, flowers purple); Wa-shan, woodlands, alt. 2300–2600 m., October 1908 (No. **1221**; bush 2.5 m. tall); same locality, May 1904 (Veitch Exped. No. 3949 and seed No. 1857); Mupin, thickets, alt. 2500–2600 m., June and November 1908 (Nos. **1221**[a], **1221**[b]; bush 2–4 m. tall, flowers purple); same locality, alt. 2000–3000 m., October 1910 (No. **4278**; bush 1–3 m. tall, flowers purple); near Mao-chou, Chiu-ting-shan, cliffs, alt. 2500–3000 m., May 23, 1908 (No. **3420**; bush 2–3 m. tall, flowers dark purple); Ching-chi Hsien, Ta-hsiang-ling, thickets, alt. 2300 m., May 1908 (No. **3450**; bush 1.5–3 m. tall, flowers purple); Ching-chi Hsien, Fei-yueh-ling, thickets, alt. 2600 m. (No. **3451**; bush 1.5–3 m. tall, flowers purple). Yunnan: Tse-kou, valley of upper Mekong, *Père T. Monbeig* (No. 6).

This is an exceedingly common species, varying considerably in the color of flowers, length of the stamens and size of the leaves. We cannot find a single character by which to separate *R. Harrovianum* Hemsley from it. Monbeig's No. 6 has unusually large flowers with included stamens and possibly represents a distinct variety. Our material, however, is insufficient to decide this.

Rhododendron concinnum Hemsley in *Jour. Linn. Soc.* XXVI. 21 (1889).

Rhododendron coombense Hemsley in *Bot. Mag.* CXXXV. t. 8280 (1909).—Schneider, *Ill. Handb. Laubholzk.* II. 1044, fig. 614 f–g (1912).

Western Szech'uan: Wa-shan, thickets, alt. 2000–2500 m., June 1909 (No. **3446**; bush 2–3 m. tall, flowers lavender-purple); same locality, alt. 1600–2300 m., June and October 1908 (No. **3448**; bush 2.5 m. tall, flowers purple).

The undescribed fruit of this species is cylindrical, 1–1.5 cm. long, 4–5 mm. wide, often curved, furrowed and lepidote.

In the description and figure of *R. coombense* Hemsley no mention is made of the corolla being lepidote; this is the only difference we can find between the two plants.

Rhododendron Searsiae Rehder & Wilson, n. sp.

Frutex 2.5–5 m. altus, ramis gracilibus; ramuli hornotini initio dense fulvo-lepidoti, demum fusci et verruculosi, annotini cinereo-fusci, vetustiores flavido-cinerei v. cinerei; gemmae florales ovatae, perulis rotundatis mucronatis minutissime puberulis sparse lepidotis ciliolatis. Folia tenuiter coriacea, oblanceolata v. oblongo-lanceolata, rarius elliptico-oblonga, acuminata, basi attenuata, margine leviter revoluta, 4–8 cm. longa et 1.2–2.5 cm. lata, supra atroviridia, initio sparse lepidota, demum glabra, nitidula, subtus glaucescentia, squamulis brunneis conspersa, costa media supra valde impressa subtus elevato, nervis utrinsecus 8–10 supra leviter impressis subtus leviter elevatis v. utrinque obsoletis; petioli supra canaliculati, 5–8 mm. longi, verruculosi, pallidi v. purpurascentes. Flores 4–8, fere umbellati; pedicelli 10–12 mm. longi, flavescenti-lepidoti; bracteae caducae, oblongo-lanceolatae, lepidotae; calyx cupularis, variabilis, lepidotus, 5-lobus, plerumque lobis 3 minutis, 2 elongatis membranaceis oblongo-ovatis obtusis longe setoso-ciliatis 4–5 mm. longis; corolla infundibuliformi-campanulata, 2.5–3 cm. longa et 3–4 cm. diam., alba v. pallide purpurea, tubo glabro 10–12 mm. longo, lobis erecto-patentibus ovatis apice rotundatis 18–20 mm. longis; stamina 10, longiora corollam fere aequantia, filamentis dilatatis infra medium villosis basi glabris, antheris pallide brunneis; ovarium elongato-conicum, circiter 5 mm. longum, dense squamulis viridi-flavescentibus obtectum; stylus purpureus, stamina paullo superans, stigmate capitato atropurpureo. Capsula cylindrica, 10–14 mm. longa, lepidota, 5-valvata; semina brunnea, nitida, minute striata, irregulariter oblonga, exalata, 1.5–2 mm. longa.

Western Szech'uan: Wa-shan, thickets, alt. 2300–2800 m., June and November 1908 (No. **1343**, type); same locality, alt. 2600–3000 m., June 1908 (No. **3449**).

This species is most closely related to *R. polylepis* Franchet which has leaves fulvous-brown below, a different calyx, anthers shortly exserted and smaller fruit. It is also closely related to *R. concinnum* Hemsley which has shorter, oblong-oval leaves, the corolla lepidote on the outer surface and pubescent within and slenderer capsules.

To Sarah Choate Sears, artist, lover and successful cultivator of flowers, this species is dedicated.

Group c.

Leaves hairy or glabrous with the petioles setose.

Rhododendron Amesiae Rehder & Wilson, n. sp.

Frutex 2–4-metralis, ramosus; ramuli hornotini et annotini dense v. interdum sparse verruculosi, annotini plerumque flavido-brunnei, vetustiores flavido-cinerei; gemmae oblongo-ovoideae, acutiusculae, perulis paucis ovatis obtusis mucronatis ciliolatis. Folia coriacea, elliptica v. elliptico-oblonga, acuta, calloso-mucronata, basi rotundata, 4–8 cm. longa et 2–3.5 cm. lata, supra obscure viridia, lepidota et ad costam mediam leviter elevatam v. vix impressam breviter villosa, subtus pallidiora dense v. densissime lepidota et ferruginea, nervis utrinsecus 6–8 supra leviter elevatis interdum sparse villosulis subtus obsoletis; petioli, 5–7 mm. longi, canaliculati, lepidoti, supra setoso-pilosi. Flores terminales, 2–3, subumbellati; pedicelli lepidoti, 1–1.5 cm. longi; calyx cupularis, lepidotus, interdum sparsi villosulus, dentibus triangularibus v. rotundatis circiter 1 mm. longis longe ciliatis; corolla infundibuliformis, 3.5–4 cm. longa et 4.5–5 cm. diam., atropupurea, extus sparse lepidota, tubo basi fere cylindrico intus circa medium villosulo, lobis 5 ovatis obtusis 1.5–2.5 cm. longis; stamina 10, inaequalia, longiora corollam fere aequantia, filamentis compressis infra medium villosis basis excepta, antheris ochraceis ovoideis; ovarium conicum, 4–5 mm. longum, dense lepidotum, basi et apice albido-pilosum; stylus gracilis, curvatus, 3.5 cm. longus, apicem versus sensim incrassatus, stigmate vix capitato leviter lobato. Capsula conica, 1.5–1.8 cm. longa et 6 mm. diam., sulcata, dense lepidota; semina ellipsoidea, utrinque acuta, circiter 2 mm. longa, exalata.

Western Szech'uan: Mupin, woods, alt. 2300–3000 m., June 1908 and October 1910 (Nos. **3444**, type, **4233**).

The setose petioles and the corolla glabrous on the outer surface suffice to distinguish this new species from its near allies *R. Searsiae* Rehder & Wilson and

R. villosum Hemsley & Wilson. It is also closely related to *R. Augustinii* Hemsley, which has narrower leaves with midribs densely villose below, unbearded petioles, smaller, more numerous, very sparingly lepidote flowers and villose shoots and leaves. This new species is rather local in its distribution; its handsome rich purple-red flowers make it one of the most beautiful plants in this section.

This species is named for Mary Shreve Ames of North Easton, Massachusetts, a generous friend of the Arnold Arboretum and of its Chinese explorations.

Rhododendron Augustinii Hemsley in *Jour. Linn. Soc.* XXVI. 19 (1889). — Bean in *Flora & Sylva,* III. 162, t. (1905). — Mottet in *Rev. Hort.* 1909, 18, fig. 16. — Hemsley & Wilson in *Kew Bull. Misc. Inform.* 1910, 114. — *Gard. Chron.* ser. 3, LII. 4, fig. 3 (1912).

Western Hupeh: north and south of Ichang, margins of woods, thickets and cliffs, alt. 1300–2300 m., May and November 1907 (No. **608**; shrub 1.5–6 m. tall, flowers rose-pink to deep lavender-purple); Fang Hsien, woodlands, alt. 1600–2000 m., May 1907 (No. **3457**; shrub 1–2 m. tall, flowers lilac-purple); Changyang Hsien, mountains, alt. 2300 m., May 1900 (Veitch Exped. No. 302). Western Szech'uan: Chiu-ting-shan, near Mao-chou, alt. 2000 m., May and October 1908 (No. **1207**; shrub 1–3 m. tall, flowers light rosy-purple); west and near Wên-ch'uan Hsien, alt. 2000–3000 m., October and November 1908 (Nos. **1197**, **1237**; shrub 2–5 m. tall); west and near Wên-ch'uan Hsien, woodlands, alt. 2000–2600 m., October 1910 (No. **4238**; shrub 2–2.5 m. tall).

This is an exceedingly common species in Hupeh, delighting in rocky situations fully exposed to the sun. The flowers vary very much in color, but the species is always easily recognizable. No. 3457 from Fang Hsien is more glabrous than the type, the Szech'uan specimens have slightly longer (1.5–2.5 cm.) and often sparsely pilose capsules. The fascicles are usually terminal and 3-flowered; in vigorous shoots, however, often six flowers occur in the fascicle and lateral fascicles also develop.

Rhododendron villosum Hemsley & Wilson in *Kew Bull. Misc. Inform.* 1910, 119. — Schneider, *Ill. Handb. Laubholzk.* II. 1045 (1912).

Western Szech'uan: Mupin, thickets, alt. 1600–2800 m., June and November 1908 (Nos. **1220**, **1220ª**; shrub 1.5–6 m. tall, flowers light purple); same locality, woodlands, alt. 2300–2800 m., October 1910 (No. **4242**; bush 2–2.5 m. tall); Wa-shan, woods, alt. 2600–3150 m., June and November 1908 (No. **1342**; bush 4–6 m. tall, flowers dark red-purple); south-east of Tachien-lu, woods, alt. 2600–3000 m., June 1908 (No. **3445**; bush 2–4 m. tall, flowers purple); without precise locality, May and July 1904 (Veitch Exped. Nos. 3944, type, 3945, 3946 and seed No. 1862).

A very common species, especially in woodlands where it often forms dense thickets; the flowers are very variable in color.

Rhododendron moupinense Franchet in *Bull. Soc. Bot. France*, XXXIII. 233 (1886); in *Nouv. Arch. Mus. Paris*, sér. 2, X. 52, t. 12 (*Pl. David.* II. 90, t. 12) (1887). — Hemsley & Wilson in *Kew Bull. Misc. Inform.* 1910, 115.

Western Szech'uan: Mupin, epiphytic on trees, alt. 2000–2600 m., September 1908 (No. **879**, in part; shrub 0.65–1 m. tall); west and near Wên-ch'uan Hsien, upon rocks, alt. 2000–2800 m., July 1908 (No. **879**, in part; bush 0.60–1 m. tall); west and near Wên-ch'uan Hsien, cliffs, alt. 3000–3300 m., October 1910 (No. **4256**; bush 0.60–1.25 m. tall, flowers white); Mt. Omei, alt. 2000 m., October 1903 (Veitch Exped. No. 3937).

This species is usually found growing upon evergreen oaks and other broad-leaved trees.

Rhododendron dendrocharis Franchet in *Bull. Soc. Bot. France* XXXIII. 233 (1886); in *Nouv. Arch. Mus. Paris*, sér. 2, X. 51, t. 13[a] (*Pl. David.* II. 89, t. 13[a]) (1887).

Western Szechu'an: Mupin, forests, alt. 2600–3000 m., June 1908 (No. **3471**; epiphytic, shrub 35–70 cm. tall; flowers bright rosy-red); without precise locality, alt. 2800 m., May 1904 (Veitch Exped. No. 3938).

This species is usually epiphytic on Abies and Tsuga.

Subgen. II. EURHODODENDRON Maxim.

Leaves not lepidote, quite glabrous or tomentose beneath, persistent. Ovary glabrous, glandular or woolly, never lepidote, often more than 5-celled, stamens 10–20; flowers always from a terminal bud.

We have retained for this subgenus, for lack of another name, the name *Eurhododendron* in the sense of Maximowicz, though unfortunately it does not include the type of the genus, which is *R. ferrugineum* Linnaeus and also *R. hirsutum* Linnaeus. De Candolle, who first used *Eurhododendron*, includes them, but Maximowicz, who divided De Candolle's section, referred the typical species to his new section *Osmothamnus* and left the remainder in *Eurhododendron*.

The colloquial name in central and western China of the species of this group is "Yeh-pi-pa"; in Chinese books they are referred to as "Shan-pi-pa."

Group a.

Leaves covered below with a close and compact tomentum.

Rhododendron argyrophyllum Franchet in *Bull. Soc. Bot. France*, XXXIII. 231 (1886); in *Nouv. Arch. Mus. Paris*, sér. 2, X. 48 (*Pl.*

David. II. 86) (1887). — Hemsley & Wilson in *Kew Bull. Misc. Inform.* 1910, 111.

Western Szech'uan: Wa-shan, thickets, alt. 2100–2500 m., June and October 1908 (No. **1210**; bush 5–6 m. tall, flowers pale pink); Mupin, thickets, alt. 2300–2800 m., October 1910 (No. **4276**; bush 2.5–5 m. tall); without exact locality, alt. 2300–2800 m., May 1904 (Veitch Exped. No. 3962); Mt. Omei, June 1904 (Veitch Exped. No. 5137).

This is one of the commonest species in western Szech'uan and shows much variation. The numerous forms before us are most puzzling, the differences between the extremes being greater than those separating many species. There is, however, a general look about them which strongly points to their belonging to one variable species. Since most of these forms are in cultivation a better classification may perhaps be made later.

The above numbers agree in having the shoots sparsely covered with a gray tomentum, and in having the corolla much narrowed at the base (infundibuliform-campanulate) as described by Franchet when founding the species; they also agree in their very short stamens. Nos. 1210 and 5137 differ from the type in the glabrous filaments. No. 1210 has a large membranous anomalous-looking calyx; the lobes being very unequal in size (from 3 to 12 mm.) and frequently laciniate. The presence of this calyx suggests relationship with *R. neriiflorum* Franchet. In No. 5137 the tomentum of the ovary is rufous instead of white.

The undescribed fruit of this species is narrowly cylindric, 2–3 cm. long, 6–8 mm. wide, straight or slightly curved, furrowed, tipped by remains of style, sparsely puberulous; seeds fusiform, about 3 mm. long, yellowish-brown.

Rhododendron argyrophyllum, var. **cupulare** Rehder & Wilson, n. var.

A typo recedit ramulis glabris, foliis basi saepius subrotundatis, corolla late campanulata basi non angustata, staminibis plerumque corollam aequantibus, stylo exserto.

Western Szech'uan: Mupin, thickets, alt. 2000–2500 m., June 1908 (No. **3442**, type; bush 1.5–3 m. tall, flowers pink); same locality, woodlands, alt. 3000 ft., October 1910 (No. **4275**[a]; bush 4 m. tall); south-east of Tachien-lu, woods, alt. 2600–3000 m., June 1908 (No. **3441**; bush 1–4 m. tall, flowers blush-white); west of Kuan Hsien, Pan-lan-shan, woodlands, alt. 2300–3000 m., October 1910 (No. **4275**; bush 2–4 m. tall); without precise locality, alt. 2600–2800 m., May 1904 (Veitch Exped. No. 3963; bush 1–8 m. tall).

In No. 3442, the leaves are cuneate at the base, but in the other numbers they are usually rounded. No. 3441 has the corolla somewhat approaching the type in shape, the stamens and pistil are also nearly intermediate in length between those of the type and the variety. In No. 3963 some of the flowers have a well-developed membranous calyx with triangular-ovate, acute or rounded teeth, some of

which are irregularly notched. This variety differs from the type chiefly in its glabrous branchlets, smaller leaves inclined to be rounded at the base and in the broad campanulate or cup-shaped corolla; it is similar to *R. hypoglaucum* Hemsley but differs in its ovary being densely covered with white hairs.

Rhododendron argyrophyllum, var. **omeiense** Rehder & Wilson, n. var.

Frutex 2-metralis; ramuli graciles, glabri v. fere glabri. Folia oblanceolata v. lanceolata, acuminata, basi cuneata, subtus tomento cinereo-albido v. fulvescente obtecta, 7–10 cm. longa. Corolla campanulata, basi leviter angustata, 3.5–4 cm. longa et circiter 4.5 cm. diam.

Western Szech'uan: without precise locality, May 1904 (Veitch Exped. No. 3962[a], type); Mt. Omei, June 1904 (Veitch Exped. No. 5137[a]).

This variety differs from the type chiefly in the dun-colored tomentum of the under side of the generally smaller leaves and in the broader corolla less narrowed at the base.

Rhododendron hypoglaucum Hemsley in *Jour. Linn. Soc.* XXVI. 25 (1889). — Diels in *Bot. Jahrb.* XXIX. 512 (1910). — Bean in *Flora & Sylva*, III. 164 (1905). — Hemsley & Wilson in *Kew Bull. Misc. Inform.* 1910, III. — Pampanini in *Nuov. Gior. Bot. Ital.* n. ser. XVII. 683 (1910).

Rhododendron gracilipes Franchet in *Jour. de Bot.* IX. 391 (1895).
Rhododendron chionophyllum Diels in *Bot. Jahrb.* XXIX. 512 (1900).

Western Hupeh: Fang Hsien, woods, alt. 2300 m., May 19, 1907 (No. **3443**, in part; bush 2.5–6 m. tall, flowers white with reddish blotch); Hsing-shan Hsien, woods, alt. 1600–2300 m., May 14, 1907 (No. **3443**, in part; bush 2.5–4 m. tall, flowers pale rose-pink); Changlo Hsien, woods, alt. 1600–2000 m., May 1907 (No. **3443**, in part; bush 1–3 m. tall, flowers, white, spotted); Patung Hsien, woods, alt. 2000 m., May 1907 (No. **3443**, in part; bush 2.5–4 m. tall, flowers pink, spotted); without locality, May 1900 (Veitch Exped. No. 311).

This is an exceedingly common species in western Hupeh and possibly only a geographical form of *R. argyrophyllum* Franchet. The ovary varies from hirsutely glandular to glabrous, as described by Diels for his *R. chionophyllum*, and with the material before us we cannot separate this species. The pedicels in *R. hypoglaucum* Hemsley vary considerably in length and are either glabrous or sparsely pubescent; the loan of a specimen of *R. gracilipes* Franchet from the Paris Museum has enabled us to establish the identity of these two species. *R. gracilipes* Franchet and *R. chionophyllum* Diels are identical and merely non-glandular forms of *R. hypoglaucum* Hemsley.

Rhododendron longipes Rehder & Wilson, n. sp.

Frutex 1–2.5 m. altus, ramulis satis gracilibus; hornotini sparse pubescentes. Folia tenuiter coriacea, oblongo-lanceolata, rarius oblongo-oblanceolata, acuminata, basi cuneata v. late cuneata, 8–13 cm. longa et 2–3.5 cm. lata, supra laete viridia, nitidula, leviter elevato-reticulata, glabra, subtus dense tomento crustacea pallide brunneo obtecta costa media supra impressa subtus elevata, nervis utrinsecus 8–12 supra impressis subtus leviter elevatis v. fere obsoletis. Flores 10–15, umbellato-racemosi; rhachis 2–2.5 cm. longa, sparse villosa; pedicelli graciles, 4–4.5 cm. longi, sparse glandulosi, saepe sparsissime villosi; calyx minimus, cupularis, lobis inaequalibus vix 1 mm. longis, acutis v. rotundatis glabris v. rarius sparse glandulosis; corolla 5-loba, e basi late tubulari infundibuliformi-campanulata, pallide rosea, maculata, circiter 3.5 cm. longa et 4. cm lata, basi leviter 5-gibbosa, lobis inaequalibus circiter 1 cm. longis et 1.5–2 cm. latis, rotundatis rarius emarginatis; stamina circiter 12, vix corollam dimidiam aequantia, filamentis basi dilatatis glabris; ovarium cylindricum, 6–7 mm. longum, tomento rufo villoso obtectum; stylus rectus, 1.6 cm. longus, basim loborum corollae paullo superans, glaber, stigmate capitato. Capsula matura desideratur.

Western Szech'uan: Ching-chi Hsien, Ta-hsiang-ling, thickets, alt. 2000–2300 m., May 16, 1907 (No. **3424**, type); without precise locality, alt. 2000–2500 m., May 1904 (Veitch Exped. No. 3966).

This is a distinct species easily recognized by its foliage and long slender pedicels. It is allied to *R. insigne* Hemsley & Wilson which is a much more vigorous growing species with thick coriaceous leaves, larger flowers and villose stamens. *R. argyrophyllum* Franchet and its varieties with which this new species may be compared has rather different shaped leaves, clothed with white tomentum below.

Rhododendron insigne Hemsley & Wilson in *Kew Bull. Misc. Inform.* 1910, 113.

Western Szech'uan: Wa-shan, woodlands, alt. 2300–2600 m., June and October 1908 (No. **1339**; bush 4–6 m. tall, flowers pink or white); same locality, alt. 2300–3000 m., July 1903 (Veitch Exped. No. 3965, type).

The fruit of this handsome species which has not been described is stout, cylindric, obtuse, 2–2.5 cm. long, about 1 cm. wide, 8–10-valved with rather thin valves, crowned by the remains of the style, and densely covered with very short, brownish crispate hairs; seeds oblong, 2.5–3 mm. long, yellowish-brown. Bark salmon-red, becoming gray with age, exfoliating in rather thin small flakes.

Rhododendron Thayerianum Rehder & Wilson, n. sp.

Frutex 3–4-metralis, ramulis crassiusculis puberulis plerumque abbreviatis foliis congestis; perulae per plures annos persistentes, oblongae v. oblongo-spathulatae v. lanceolatae, acutae v. obtusae v. apiculatae, 1–2 cm. longae, glabrae v. extus sericeae, brunneae. Folia coriacea, anguste oblanceolata, cuneata, acuminata, 8–13 cm. longa et 1.5–3 cm. lata, supra laete viridia, nitidula, leviter elevato-reticulata, subtus tomento crustaceo pallide brunneo denso obtecta, costa media supra impressa subtus elevata fere glabra, nervis utrinsecus 10–12 obsoletis interdum supra leviter impressis; petioli crassiusculi, initio sparse glandulosi demum glabri, 1–1.5 cm. longi. Flores 10–15, racemosi; rhachis elongata, satis gracilis, 3–3.5 cm. longa, sparse stipitato-glandulosa ut pedicelli graciles, 4–5 cm. longi; bracteae oblongo-spathulatae v. oblongae, 1–2.5 cm. longae, extus sericeae ad maturitatem fructus persistentes; calyx cupularis, lobis inaequalibus semiorbicularibus 1.5–2 mm. longis glandulosis; corolla infundibuliformis, 5-lobata, 2.5–3 cm. longa et 3–3.5 cm. diam., lobis inaequalibus circiter 1.5 cm. longis rotundatis; stamina 8–10, corollam fere aequantia, filamentis 2–2.5 cm. longis compressis in dimidio inferiore floccoso-villosis; ovarium elongatun, glandulosum; stylus rectus, circiter 2.5 cm. longus, dense glandulosus, stigmate magno applanato. Capsula cylindrica, 2–3 cm. longa et circiter 6 mm. diam., 6–8-locularis, glandulosa; semina anguste oblonga, 3–4 mm. longa, pallide brunnea, utrinque alata.

Western Szech'uan: Mupin, woodlands, alt. 3000 m., October 1910 (No. **4273**).

This is a remarkably distinct species differing from all allied species in its persistent bud-scales densely covering the leafy shoots. The leaves are crowded and the inflorescence and ovary are very glandular. In its dun-colored, crustaceous tomentum this new species resembles *R. longipes* Rehder & Wilson, which is, however, readily distinguished by its differently shaped flowers and leaves, deciduous bud-scales and bracts, glabrous non-glandular stamens and style. Our specimens are in ripe fruit with a few old flowers adherent to the glandular capsules.

This species is named for the Thayer family of Lancaster, Massachusetts, prominent in horticulture and generous in its support of the explorations in China undertaken by the Arnold Arboretum.

Group b.

Leaves with a woolly or sometimes nearly scurfy brownish tomentum on the midrib beneath, otherwise glabrous or villose when young.

Rhododendron longesquamatum Schneider, *Ill. Handb. Laubholzk.* II. 483 (1909), 1045 (1912).

Rhododendron Brettii Hemsley & Wilson in *Kew Bull. Misc. Inform.* 1910, 106.

Western Szech'uan: Mupin, woodlands, 3300–3500 m., July 1908 (No. **1278**; bush 2.5–5 m. tall, flowers rose-pink); Wa-shan, woodlands, alt. 3000 m., November 1908 (No. **1361**; bush 4–6 m. tall); same locality, alt. 2300–2600 m., July 1908 (No. **3439**; bush 3–5 m. tall, flowers pink with purple blotch); west and near Wên-ch'uan Hsien, woodlands, alt. 2600–3300 m., July 1908 (No. **3438**; bush 2.5 m. tall, flowers rosy-red); Mupin, woodlands, alt. 3000–3300 m., October 1910 (No. **4263**; bush 2–3 m. tall); Tachien-lu, July 1903 (Veitch Exped. No. 3973, type).

This most striking species varies slightly in different localities. In No. 3439 the calyx-lobes are almost wanting and the bracts are very sparse; in No. 3438 the lower surface of the midribs is glabrous, and the pedicels and ovary are much less glandular-pubescent.

Rhododendron pachytrichum Franchet in *Bull. Soc. Bot. France*, XXXIII. 231 (1886); in *Nouv. Arch. Mus. Paris*, sér. 2, X. 49 (*Pl. David.* II. 87) (1888). — Hemsley & Wilson in *Kew Bull. Misc. Inform.* XXIII. 1910, 109.

Western Szech'uan: Mupin, woods, alt. 2500–3300 m., June and October, 1908 (No. **1203**, in part; bush 2.5–6 m. tall, flowers white); same locality, alt. 2600–2800 m., October 1910 (No. **4270**; bush 2–5 m. tall); Wa-shan, woods, alt. 2500–3000 m., June and November, 1908 (No. **1203**, in part; bush 4–6 m. tall, flowers white); same locality, June and November 1908 (No. **1349**; bush 5–6 m. tall; flowers pale pink, spotted); Tachien-lu, woods, alt. 3000–3600 m., September 1908 (No. **1203**, in part; bush 2–6 m. tall, flowers white) south-east of Tachien-lu, woodlands, 3000–3300 m., October 1908 (No. **1326**; bush 3–6 m. tall); near Mao-chou, Chiu-ting-shan, cliffs, alt. 2500–2800 m., May and October 1908 (No. **3440**; bush 1–3 m. tall, flowers white); west of Kuan Hsien, Pan-lan-shan, woodlands, alt. 2300–2600 m., October 1910 (No. **4246**; bush 2–2.5 m. tall); without precise locality, alt. 2600–3300 m., May 1904 (Veitch Exped. No. 3976).

This is one of the commonest and most widely dispersed species found in western Szech'uan. The fruit which has not been described is slender, cylindric, 2–3 cm. long, 6–8 mm. wide, furrowed, sparingly hispid or glabrescent, about 8-celled; seeds fusiform, about 3 mm. long, blackish.

Rhododendron strigillosum Franchet in *Bull. Soc. Bot. France*, XXXIII. 232 (1886); in *Nouv. Arch. Mus. Paris*, sér. 2, X. 48 (*Pl.*

David. II. 87) (1888). — Hemsley & Wilson in *Kew Bull. Misc. Inform.* 1910, 107.

Western Szech'uan: Wa-shan, thickets, alt. 2600–3300 m., October 1908 (No. **1341**; bush 5–6 m. tall); same locality, woodlands, alt. 2300–2800 m., June 1908 (No. **3429**; bush 3–5 m. tall, flowers red); same locality, thickets, alt. 2600–3000 m., June 1908 (No. **3430**; bush 6 m. tall, flowers white); Mupin, woodlands, 2500–2600 m., October 1910 (No. **4258**; bush 2–4 m. tall); Mt. Omei, woodlands, alt. 2600 m. (No. **4267**; bush 3–4 m. tall).

The undescribed fruit is stout, cylindric, 1.2–2.5 cm. (usually 1.8 cm.) long, furrowed, densely covered with brown bristly hairs; seeds dark, shining brown, oblong, 3–4 mm. in length. This species which is rather rare is easily recognized by its setose branches, petioles and inflorescence. The corolla varies from pure white to crimson. No. 3429 is much less bristly than the usual form and shows an approach towards *R. pachytrichum* Franchet, which is the species most closely related to it.

Group c.

Leaves with a brown or brownish tomentum covering the whole under surface, rarely glabrescent at maturity.

Rhododendron Wiltonii Hemsley & Wilson in *Kew Bull. Misc. Inform.* 1910, 107.

Western Szech'uan: Wa-shan, thickets, alt. 2500 m., June and November 1908 (No. **1353**, in part; bush 3–5 m. tall, flowers flesh-pink, spotted); Mupin, woodlands, alt. 2300–2600 m., June 1908 (No. **1353**, in part; bush 3–5 m. tall, flowers white with red blotch); same locality, October 1910 (No. **4264**; bush 3 m. tall); without precise locality, alt. 3300 m., May 1904 (Veitch Exped. No. 3952, type).

This is a rather rare species, easily recognized by its thick leaves narrowed to the base, shining green and rugose above, covered below with loose red-brown tomentum, and by its woolly pedicels and minute calyx. The fruit is similar to that of *R. Wasonii* Hemsley & Wilson.

Rhododendron maculiferum Franchet in *Jour. de Bot.* IX. 393 (1895). — Hemsley & Wilson in *Kew Bull. Misc. Inform.* 1910, 109.

Western Hupeh: Fang Hsien, woods, alt. 2600–3300 m., May 1907 (No. **3412**, in part; bush 1–10 m. tall, flowers white or pink with dark blotch, abundant); Changlo Hsien, woodlands and cliffs, alt. 2000 m., May 1907 (No. **3412**, in part; bush 2–2.5 m. tall); Changyang Hsien, woodlands and cliffs, alt. 1600–2500 m., May and June 1907 (No. **3412**, in part; bush 2–2.5 m. tall, flowers light pink with dark spots); without precise locality, May 1901 (Veitch Exped. No. 1878).

This is a very common species above 2000 m. alt. in north-west Hupeh, and is easily recognized by its villose pedicels and ovary, rather short, elliptic leaves with the midrib floccosely tomentose on the under side.

Rhododendron Weldianum Rehder & Wilson, n. sp.

Frutex 2–4-metralis; ramuli crassi, initio floccoso-tomentosi, mox glabrescentes; gemmae ovoideae, purpurascentes, perulis late ovatis apice rotundatis subito mucronatis extus marginem versus villosulis intus villosulis. Folia coriacea, elliptico-oblonga, basi cuneata, rarius rotundata, acuta v. breviter acuminata, margine leviter revoluta, 6–11 cm. longa et 3–4 cm. lata, supra glabra, nitidula, leviter rugulosa, subtus dense tomento lanuginoso initio albido demum ferrugineo obtecta, costa media supra impressa subtus elevata, nervis utrinque 10–12 obsoletis supra leviter impressis; petioli crassi complanati, 1–1.5 cm. longi, floccoso-tomentosi, glabrescentes. Florum fragmenta tantum adsunt; calyx obsoletus; corolla infundibuliformis, 22 mm. longa, lobis late ovatis 9–10 mm. longis, tubo 12 mm. longo; stamina 20 mm. longa, corolla paullo breviora, in quarta parte inferiore pilosula. Racemi sub-umbelliformes, 6–12-flori; pedicelli crassi, 1–1.5 cm. longi, ut capsula tomento rufescente floccoso-lanuginoso vestiti; capsula cylindrica, 2–2.5 cm. longa et 7–9 mm. diam.; semina ovato-oblonga, 2.5–3.5 mm. longa, compressa, obscure brunnea, striatula.

Western Szech'uan: west and near Wên-ch'uan Hsien, woodlands, alt. 3300 m., October 1910 (No. **4235**, type); near Sungpan Ting, woodlands, alt. 3500 m., October 1910 (No. **4250**).

This species seems most closely allied to *R. rufum* Batalin which we have not seen but according to the description this plant has shorter and broader leaves, rounded at the ends, longer petioles, a longer corolla-tube and shorter stamens, reaching only to the base of the lobes.

This species is named for General Stephen Minot Weld, a former president of the Massachusetts Horticultural Society and a generous supporter of Wilson's expeditions to China.

Rhododendron Wasonii Hemsley & Wilson in *Kew Bull. Misc. Inform.* 1910, 105.

Western Szech'uan: Mupin, woodlands, alt. 2600 m., June 1908 (No. **3423**; bush 1–2 m. tall, flowers rose-pink); south-east of Tachien-lu, forests on cliffs and boulders, alt. 3000–3600 m., October 1910 (No. **4249**; bush 1–1.25 cm. tall); Tachien-lu, forests, alt. 3000 m., May and July, 1904 (Veitch Exped. Nos. 3955, type, 3965, 3969).

This is a common low-growing species partial to rocks in the forests. The broadly lanceolate to nearly ovate leaves shining green above and covered below

with rufous tomentum, floccose pedicels and slender fruit covered with red-brown tomentum distinguish it from the allied species. In No. 3969 the leaves are oval, and glabrescent below.

Rhododendron Faberii Hemsley in *Jour. Linn. Soc.* XXVI. 22 (1889). — Schneider, *Ill. Handb. Laubholzk.* II. 494 (1909). — Hemsley & Wilson in *Kew Bull. Misc. Inform.* 1910, 105.

Rhododendron Prattii Franchet in *Jour. de Bot.* IX. 389 (1895).

Western Szech'uan: Wa-shan, thickets, alt. 2600–3000 m., June 1908 (No. **3436**; bush 4–6 m. tall, flowers white, spotted red); west and near Wên-ch'uan Hsien, woods, alt. 2800–3000 m., July 1908 (No. **3437**, in part; bush 2.5–4 m. tall, flowers white); Tachien-lu, woods and thickets, alt. 3000–3300 m., June 1908 (Nos. **3432**, **3437**, in part; bush 2.5–6 m. tall, flowers white); same locality, woodlands, alt. 2600–3300 m., October 1910 (Nos. **4234**, **4272**, in part; bushes 2.5–4 m. tall); around Tachien-lu, alt. 2600–4300 m., May, June and October 1904 (Veitch Exped. Nos. 3958, 3958[a], 3959, 3961); vicinity of Tachien-lu 3000–4500 m., *A. E. Pratt* (No. 58, type of *R. Prattii* Franchet); Mupin, woodlands, alt. 2600–3000 m., June 1908 (No. **3437**, in part; bush 2–4 m. tall, flowers white, dark blotch); near Lungan Fu, forests of Tu-ti-liang-shan, alt. 3000 m., August 1910 (No. **4272**, in part; bush 4 m. tall); Mt. Omei, June 1904 (Veitch Exped. No. 5142).

The undescribed fruit of this species is stout, cylindric, 2.5–3 cm. long, 7–9 mm. wide, usually curved, furrowed, 8–10-celled, hairy, very sparsely glandular; the persistent calyx-lobes enclosing the lower half of the capsule; seeds fusiform, 3–3.5 mm. long, dark brown.

This very common woodland species varies considerably in the size of the leaves, in the degree of tomentum on their under surface and in the size of the calyx-lobes which, however, are always ample. In No. 3432 the pedicels are nearly glabrous, the calyx-lobes are short and narrow and the leaves closely resemble those of *R. Przewalskii* Maximowicz. No. 5142 has very glandular pedicels.

Rhododendron taliense Franchet in *Bot. Soc. Bot. France*, XXXIII. 232 (1886). — Hemsley in *Jour. Linn. Soc.* XXVI. 31 (1889). — Hemsley & Wilson in *Kew Bull. Misc. Inform.* 1910, 105. — Diels in *Not. Bot. Gard. Edinburgh*, V. 216 (*Pl. Chin. Forrest.*) (1912).

Western Szech'uan: Tachien-lu, moorlands, alt. 3000–3300 m., June and October, 1908 (No. **1325**; bush 1–3 m. tall, flowers pink); same locality, uplands, alt. 3600–4100 m., October 1910 (No. **4232**, fruits only; bush 1–2.5 m. tall); without precise locality, alt. 3600–4300 m., July 1903 and June 1904 (Veitch Exped. Nos. 3970, 3953).

This species is closely related to *R. Przewalskii* Maximowicz, but may be distinguished from that species by its longer and narrower fruit, larger seeds and the gray tomentum of the young branches; the petioles, pedicels and calyx also are sparsely hairy. Both species are alpine and are found growing together in the neighborhood of Tachien-lu.

Rhododendron Przewalskii Maximowicz in *Bull. Acad. Sci. St. Pétersbourg*, XXIII. 350 (1877); in *Mél. Biol.* IX. 771 (1877).—Hemsley in *Jour. Linn. Soc.* XXVI. 29 (1889).—Bean in *Flora & Sylva*, III. 164 (1905).—Schneider, *Ill. Handb. Laubholzk.* II. 485, fig. 321 d (1909).—Hemsley & Wilson in *Kew Bull. Misc. Inform.* 1910, 108.

Rhododendron kialense Franchet in *Jour. de Bot.* IX. 392 (1895).

Western Szech'uan: west and near Wên-ch'uan Hsien, uplands, alt. 3000–3600 m., July 1908 (No. **3433**; bush 1.5–3 m. tall, flowers white, spotted); Tachien-lu, Ta-p'ao-shan, moorlands, alt. 4300–5000 m., July 7, 1908 (No. **3434**; bush 1–2 m. tall, flowers white); Tachien-lu, uplands, alt. 4300–4600 m., June 1908 (No. **3435**; bush, 1–3 m. tall, flowers white); same locality, alt. 3600–4500 m., October 1910 (Nos. **4231**, **4243**; bushes 65 cm.–3 m. tall); same locality, alt. 3600–4600 m., June and October 1904 (Veitch Exped. Nos. 3968, 3957).

This is the most alpine of the broad-leaved species found in western Szech'uan where it is extremely abundant above the timber-line. The flowers vary in color from white to rose-pink and are commonly spotted. Maximowicz describes the stamens as villose and Franchet in his *R. kialense* as glabrous. Both forms are represented in the specimens before us and gradually merge into one another. The flowers and leaves are identical although the leaves vary considerably in size and shape. No. 3957 has broadly ovate leaves, floccosely tomentose below, a rosy-pink corolla and stout fruit covered with purple bloom.

Rhododendron ochraceum Rehder & Wilson, n. sp.

Frutex 3-metralis; ramuli hornotini dense pubescentes, pilis glanduliferis interspersis, annotini glabrescentes; gemmae perulis extus tomentosis longe acuminatis exterioribus in appendicem elongatum linearem elongatis (semper ?). Folia tenuiter coriacea, oblanceolata, subito breviter acuminata, basi late cuneata v. rotundata, margine leviter revoluta, 6–9 cm. longa et 1.5–2.5 lata, supra initio pilis fasciculatis caducis conspersa, mox glabra, laete viridia, opaca, minute elevato-reticulata, subtus dense tomento ochraceo floccoso vestita, costa media supra impressa subtus elevata, nervis lateralibus obsoletis; petioli graciles, 1–2 cm. longi, sparse pubescentes et glanduloso-

pilosi. Flores 8–12, racemoso-umbellati; pedicelli glanduloso-pilosi, 6–12 mm. longi; bracteae oblongae, 1–1.5 cm. longae, cito caducae, extus sericeae; calyx cupuliformis, rubescens, lobis 5 inaequalibus late triangularibus acutis 2–5 mm. longis pilosis; corolla late campanulata, kermesina, immaculata, 5-loba, circiter 3 cm. longa et lata, tubo e basi lata sensim ampliato, 18–20 mm. longo, lobis subrotundatis plerumque emarginatis, circiter 1 cm. longis et paullo latioribus; stamina plerumque 12, inclusa, 1.6–2.2 cm. longa, filamentis glabris compressis, antheris atropurpureis; ovarium conicum, dense pilis strigosis plerumque glanduliferis obtectis, stylo glabro 2 cm. longo, stigmate parvo simplici. Capsula cylindrica, 2–2.5 cm. longa et 5–6 mm. diam., vetulosa et sparse glandulosa, valvis plerumque 6; semina fusiformia, compressa, 2.5–3 mm. longa, flavido-brunnea.

Western Szech'uan: Wa-shan, thickets, alt. 2600–3000 m., June 1908 (No. **3425**).

This is a rare and very distinct species perhaps most closely related to *R. strigillosum* Franchet, which has strigose hairs covering the branches, petioles and fruit, very different tomentum, mainly confined to the center of the lower surface of the leaves, larger flowers and very differently shaped fruit. Our plant may also be compared with *R. pachytrichum* Franchet which is easily distinguished by the leaves being glabrous on the under surface, with the exception of the midrib, by larger flowers, villose stamens and by the larger, stouter and glabrescent fruit.

Group d.

Leaves with a white or whitish often very close tomentum beneath.

Rhododendron floribundum Franchet in *Bull. Soc. Bot. France*, XXXIII. 232 (1886); in *Nouv. Arch. Mus. Paris*, sér. 2, X. 45 (*Pl. David.* II. 88) (1888). — Hemsley & Wilson in *Kew Bull. Misc. Inform.* 1910, 106.

Western Szech'uan: Mupin, woodlands, alt. 2600 m., October 1910 (No. **4266**; bush 3–5 m. tall); without precise locality, alt. 1300 m., July 1903 (Veitch Exped. No. 3967).

The undescribed fruit of this species is stout, cylindric, straight or curved upwards, 2–3 cm. long, about 1 cm. wide, 8–10-celled and sparsely clothed with short, yellowish-gray pubescence; seeds fusiform, 3–4 mm. long, chestnut-brown in color.

Rhododendron Hunnewellianum Rehder & Wilson, n. sp.

Frutex 2–5-metralis; ramuli crassiusculi, initio tomento floccoso cinereo vestiti, demum glabrescentes; gemmae subglobosae, perulis paucis suborbicularibus extus fusco- v. fusco-cinereo-tomentosulis intus glabris. Folia coriacea, oblanceolata, rarius anguste oblongo-lanceo-

lata, acuminata, basi cuneata, 7–11 cm. longa et 1.5–2.5 cm. lata, supra glabra, maturitate leviter rugulosa, subtus tomento floccoso lanuginoso albido vestita, costa media supra impressa subtus manifeste elevata glabra, nervis utrinsecus 14–17 supra impressis interdum obsoletis; petioli puberuli, mox glabri, 8–15 mm. longi. Flores umbellato-racemosi, plures; rhachis circiter 1 cm. longa, pubescens; pedicelli laxe ferrugineo-villosi et minute glandulosi, 1.5–2 cm. longi; calyx cupularis, brevis, lobis 5 rotundatis latioribus quam longis extus sparse puberulis et glandulosis; corolla 5-loba, late campanulata, 4–5 cm. longa et lata, alba, maculata, lobis ovalibus apice rotundatis circiter 2 cm. longis quam tubus intus in parte inferiore dense glandulosus paullo brevioribus; stamina circiter 10, inclusa, 2.5–3.5 cm. longa, filamentis compressis basim versus glandulosis; ovarium anguste conicum, 7–8 mm. longum, tomento villoso flavido obtectum; stylus 4–5 cm. longus, rectus, glaber basi sparse villoso glandulosoque excepto, stigmate magno applanato. Capsula cylindrica, 2–2.5 cm. longa et 8–10 mm. diam., 8-locularis, partim tomento rufo obtecta, glabrescens; semina brunnea, ovoidea v. oblongo-ovoidea, compressa, circiter 2 mm. longa.

Western Szech'uan: west and near Wên-ch'uan Hsien, thickets, alt. 2000–2600 m., July and October 1908 (No. **1198**, type); same locality, alt. 2600–3300 m., October 1910 (No. **4248**); south-east of Sungpan Ting, woods, alt. 3300 m., August 1910 (No. **4727**).

This species is related to *R. floribundum* Franchet, which is readily distinguished by its much larger, subbullate, strongly veined leaves with the secondary veins prominent below, and rather different, smaller flowers. Our material consists of specimens with ripe fruit and old flowers; the color of the flowers is unknown, but it is apparently white or nearly so. In the region where this species grows Rhododendrons are called "Yang-ngo-hwa."

It is fitting that the name of Hunnewell should be associated with a species of Rhododendron, for two generations of this Massachusetts family have devoted themselves to the cultivation of these plants in their gardens at Wellesley and have lost no opportunity to increase the knowledge and advance the interests of American horticulture.

To this group also belong the two following species:

Rhododendron Monbeigii Rehder & Wilson, n. sp.

Frutex ramis validis, annotinis glabris. Folia tenuiter coriacea, oblanceolata v. oblongo-lanceolata, acuta v. brevissime acuminata, basi sensim attenuata, 9–15 cm. longa et 3–4 cm. lata, supra glabra, obsolete rugulosa, subtus dense tomento lanuginoso arcte adpresso albido vestita, costa media supra impressa, subtus elevata flavida, glabra v. fere glabra, nervis utrinsecus 12–15 supra leviter v. vix impressis subtus leviter elevatis; petioli validi, circiter 1 cm. longi, glabri v. fere glabri. Flores 10–12, umbellato-racemosi; bracteae caducae, oblongae, extus villosae, 1–1.5 cm. longae; pedicelli sparsissime pilosi v. fere glabri, 1.2–1.5 cm. longi; calyx minimus, cupularis, lobis latis brevissimis acutis v. obtusis

glabris; corolla 5-loba, late turbinato-campanulata, basi leviter 5-gibbosa, 3.5–4 cm. longa 4–4.5 cm. lata, glabra, pallida (colore ignoto); lobi 1–1.5 cm. longi, circiter duplo quam tubus longiores, inaequales, rotundati et apice leviter emarginati; stamina 10, inclusa, 1.5–3 cm. longa, filamentis complanatis basi sparse glandulosis, antheris purpureis; ovarium cylindricum, 8–10 mm. longum, sparsissime glandulosum; stylus curvatus, 2.2–2.5 cm. longus, corollam aequans v. paullo superans, glaber v. in parte inferiore sparse puberulus stigmate simplice. Capsula matura non visa.

Western Yunnan: Tse-kou, valley of upper Mekong river, *T. Monbeig*, (Nos. 16, type, 2).

The nearest ally of *R. Monbeigii* is undoubtedly *R. foveolatum* Rehder & Wilson, which is distinguished by the peculiar foveolate tomentum of the leaves, the tomentose branchlets, smaller flowers, the shorter, rufously tomentose ovary, the shorter style and stamens and by the pubescent pedicels. *R. gymnanthum* Diels also seems related to this species, but is at once distinguished by the quite glabrous and green under surface of the leaves and by the distinctly racemose inflorescence with short pedicels.

Rhododendron foveolatum Rehder & Wilson, n. sp.

Frutex ramulis crassiusculis annotinis et biennibus albido-tomentosis. Folia tenuiter coriacea, oblongo-oblanceolata, basi sensim attenuata, apice acuta v. fere rotundata et mucronata, margine leviter reflexo, 9–10 cm. longa et 2–3 cm. lata, supra glabra, obscure viridia, leviter elevato-reticulata, subtus dense tomento cinereo foveolato-lanuginoso obtecta, costa supra impressa subtus elevata nervis utrinsecus 10–12 supra leviter impressis subtus leviter elevatis; petioli 1–1.5 cm. longi, crassi, adpresse cinereo-tomentosi. Flores 10–12, umbellato-racemosi; pedicelli crassiusculi tenuiter tomentosi; calyx brevissimus, cupularis, obsolete 5-dentatus, puberulus; corolla 5-loba, late turbinato-campanulata, 3–3.5 cm. longa et lata, basi leviter 5-gibbosa, pallida (colore ignoto), maculata, lobis inaequalibus suborbicularibus latioribus quam longis leviter emarginatis; stamina 10, inclusa, 1–2 cm. longa, filamentis complanatis basi sparsissime pilosis, antheris purpureis; ovarium conicum, 5 mm. longum dense tomento rufo obtectum; stylus leviter curvatus, 1.5–2 cm. longus, glabrous, stigmate capitato. Capsula matura desideratur.

Yunnan: Tse-kou, valley of upper Mekong river, *T. Monbeig* (No. 3).

This species is related to *R. Monbeigii* Rehder & Wilson which has a different tomentum, larger flowers, an elongated, glabrescent ovary and glabrous branchlets.

Group e.

Leaves glabrous beneath.

Rhododendron Souliei Franchet in *Jour. de Bot.* IX. 393 (1895).—*Gard. Chron.* ser. 3, XLV. 380, fig. 167, t. (1909).—Hemsley & Wilson in *Kew Bull. Misc. Inform.* 1910, 108. — Diels in *Not. Bot. Gard. Edinburgh*, V. 217 (*Pl. Chin. Forrest.*) (1912).

Western Szech'uan: vicinity of Tachien-lu, upland, thickets and woodlands, alt. 3000–3600 m., June and October 1908 (No. **1222**; bush 2–3 m. tall, flowers rose-pink); same locality, October 1910 (No. **4274**; bush 1–2 m. tall); without precise locality, alt. 3300–3800 m., July and October 1903 (Veitch Exped. No. 3971).

The open campanulate flowers with the large calyx, leaves cordate or truncate at the base, with a metallic-green luster, readily distinguish *R. Souliei* from all related species.

Rhododendron Williamsianum Rehder & Wilson, n. sp.

Frutex 1.50 altus, ramosu; ramuli graciles, hornotini sparse pilis glanduliferis instructi, annotini glabri, nitiduli, pallide cinereo-fusci; gemmae ovoideae, acutae, purpurascentes, perulis extus glabris ciliolatis. Folia coriacea, ovata v. rotundato-ovata, apice rotundata apiculata, basi plerumque leviter cordata, rarius truncata, margine reflexa, 1.7–4.2 cm. longa et 1.3–3.2 cm. lata, glabra, supra obscure viridia, leviter elevato-reticulata, subtus flavescenti-glauca, obsolete elevato-reticulata; petioli 1–1.5, saepe sparsissime glanduloso-pilosi, purpurascentes. Flores 3–5, umbellato-racemosi; pedicelli sparse glanduloso-pilosi, purpurascentes, interdum glabri; calyx minutus, obsolete 5-dentatus, sparse stipitato-glandulosus praesertim ad marginem; corolla aperte campanulata, 3–3.5 cm. longa et 4–4.5 cm. lata, glabra, pallide rosea maculis destituta, 5-loba lobis suborbicularibus 1.2–1.4 cm. longis; stamina plerumque 10, longiora medium loborum attingentia, filamentis glabris; ovarium conicum, glanduloso-pilosum, 4–5 mm. longum; stylus curvatus, exsertus, totus sparse glandulosus glandulis infra medium stipitatis, stigmate capitato. Capsula cylindrica, circiter 1.5 cm. longa, 5 mm. diam., glabra v. sparse glandulis stipitatis instructa, pallida; semina cinnamomea, 2–2.5 mm. longa, utrinque alata.

Western Szech'uan: Wa-shan, thickets covering cliff, rare, alt. 2800 m., June and October 1908 (No. 1350).

This pretty and distinct species is apparently most nearly related to *R. Soulici* Franchet, which is easily distinguished by its rather large membranous calyx, differently shaped flowers and larger leaves, merely pale below. It may also be compared with *R. rotundifolium* David, which is a much more vigorous species, easily distinguished by its totally different leaves and 7-lobed corolla. This new species is apparently very local, occurring only in isolated places on the cliffs of Wa-shan.

This species is named for Mr. J. C. Williams of Caerhays Castle, Cornwall, England, the first amateur to appreciate the horticultural value of the Rhododendrons of western China; in his garden the best collection of these new introductions is now to be found.

To this group also belong the following species:

Rhododendron Purdomii Rehder & Wilson, n. sp.

Frutex robustus ramulis crassis junioribus puberulis; gemmae perulis ovalibus v. oblongis puberulis per plures annos persistentibus. Folia coriacea, oblongo-lanceolata v. oblonga, acuta, basi cuneata, margine revoluta, 6–9 cm. longa et 2.5–3.5 cm. lata, utrinque glabra, supra laeta viridia, nitida, leviter rugulosa,

subtus pallidiora, leviter elevato-reticulata, costa media supra impressa subtus elevata, nervis utrinsecus 10–12 supra leviter impressis v. fere obsoletis subtus leviter elevatis; petioli crassi, 1–1.2 cm. longi, juniores puberuli. Flores 10–12 v. plures, racemoso-umbellati; rhachis circiter 1 cm. longa, rufo-tomentosa; pedicelli graciles, 1–1.6 cm. longi, tomento villoso cinereo-albido dense vestiti; bracteae oblongo-obovatae v. oblanceolatae, utrinque villosae; calyx minutus, cupularis, lobis 5, late triangularibus acutis 1–1.5 mm. longis sparse pubescentibus; corolla campanulata, 2.5–3 cm. longa ac lata, 5-loba, lobis rotundatis circiter 1 cm. longis; stamina circiter 10, corollam subaequantia, filamentis 2–2.5 cm. longis dilatatis supra medium villosis, antheris pallide roseis; ovarium conicum, 4–5 mm. longum, sparse albido-villosum; stylus curvatus, glaber, stigmate capitato. **Capsula desideratur.**

Shensi: Tai-pei-shan, 1910, *W. Purdom* (No. 4).

This species is closely related to *R. brachycarpum* G. Don, a Japanese species, which has rather differently shaped leaves white or dun-colored on the under side, a more elongated inflorescence, longer pedicels and larger flowers. It is also related to *R. Przewalskii* Maximowicz which has broader leaves, usually subcordate at the base and covered with rufous or pale tomentum beneath, glabrous pedicels and an umbellate inflorescence.

This species is named for William Purdom, in charge of the Arnold Arboretum explorations in northern China during the years 1909, 1910 and 1911.

Rhododendron gymnanthum Diels in *Not. Bot. Gard. Edinburgh*, V. 211 (*Pl. Chin. Forrest.*) (1912).

Yunnan: Tse-kou, valley of upper Mekong river, *T. Monbeig* (No. 4).

Our specimens differ from Diels' description in the longer calyx-lobes, in the ovary being 7–9 mm. long, and in the partly short-acuminate leaves. We consider this species as closely related to *R. irroratum* Franchet and possibly some specimens collected in Yunnan by *A. Henry* (Nos. 10275, 10853, 11066, 11067, 11067[b]) and referred by Hemsley & Wilson (*Kew Bull. Misc. Inform.* 1910, 112) to *R. irroratum*, might be considered as constituting a pubescent variety of *R. gymnanthum*. In his original description of that species (*Bull. Soc. Bot. France*, XXXIV. 280) Franchet describes the under surface of the leaves as glaucous and the ovary as densely clothed with brown glands. In all Henry's specimens the leaves are pale green below and the ovary is not glandular but densely covered with rufous-gray tomentum. In No. 10853 the ovary is very sparsely tomentose. The figure in the *Botanical Magazine* (LXX. t. 7361) of *R. irroratum* agrees with Franchet's description except that the leaves are pale green below. Possibly the species is very variable. Père Monbeig's specimen is glabrous everywhere save the rhachis of the inflorescence, which is very sparingly puberulous and totally without glands. This and the racemose-umbellate inflorescence readily distinguish it from the *R. irroratum* Franchet, and from the specimens of Henry's cited above.

According to the description this new species is also near *R. lukiangense* Franchet which has persistent bracts, shorter pedicels, smaller, differently shaped flowers and inconspicuous calyx-teeth.

Group f.

Corolla 7–9-lobed (5-lobed in the preceding groups of this subgenus). Leaves glabrous, cordate to abruptly contracted at the base (cuneate in a variety of *R. Fortunei*).

Rhododendron orbiculare Decaisne in *Fl. des Serres*, XXII. 169 (1877). — Hemsley & Wilson in *Kew Bull. Misc. Inform.* 1910, 108.

Rhododendron rotundifolium David in *Jour. As. Soc. North China Branch*, VII. 216 (nomen nudum) (1873). — Franchet in *Nouv. Arch. Mus. Paris*, sér. 2, X. 47 (*Pl. David.* II. 85) (1888). — Schneider, *Ill. Handb. Laubholzk.* II. 483, fig. 321 a (1909).

Western Szech'uan: Mupin, woodlands and thickets, alt. 2600–3000 m., June 1908 (No. **3418**, in part; bush 1.5–4 m. tall, flowers deep rose-red); west and near Wên-ch'uan Hsien, woodlands, alt. 3300 m., July 1908 (No. **3418**, in part; bush 1.5–4 m. tall, flowers rosy-red); Tachien-lu, woodlands, alt. 3300 m., June and July 1904 (Veitch Exped. No. 3951).

Though the leaves of this species, which resemble those of a small-leaved Nuphar, are remarkably distinct, David's words "remarquable par ses feuilles rondes" in reference to his *R. rotundifolium* can hardly be considered a sufficient description.

Rhododendron Fargesii Franchet in *Jour. Bot.* IX. 390 (1895). — Bois in *Jour. Soc. Hort. France*, sér. 4, I. 217, fig. 24 (1900). — Hemsley & Wilson in *Kew Bull. Misc. Inform.* 1910, 109. — *Gard. Chron.* ser. 3, LI. 252 (1912); LII. 4, fig. 4 (1912).

Western Hupeh: Fang Hsien in thickets and forests of Silver Fir, alt. 2000–3000 m., May 1907 (No. **3416**; bush 1–6 m. tall, flowers white to deep rosy-red, spotted); Fang Hsien, woodlands Sheng-têng-chia, alt. 2650 m., May 1907 (No. **3417**; bush 2 m. tall, flowers rosy-pink); without precise locality, May 1901 (Veitch Exped. No. 1877).

This is a beautiful and distinct species, abundant in the upper woodlands of north-western Hupeh, but is not found below 2000 m.; the flowers vary from white to deep rosy-red and are borne in compact trusses at the end of every shoot.

Rhododendron oreodoxa Franchet in *Bull. Soc. Bot. France*, XXXIII. 230 (1886); in *Nouv. Arch. Mus. Paris*, sér. 2, X. 46 (*Pl. David.* II. 84) (1888).

Rhododendron haematocheilon Craib in Gard. Chron. ser. 3, LIII. 214 (1913).

Western Szech'uan: Mupin, woodlands, alt. 2600–3000 m., June and October 1908 (No. **1211**, in part; bush 2–3 m. tall, flowers rose-pink); same locality, October 1910 (No. **4260**; bush 2–3 m. tall); west and near Wên-ch'uan Hsien, woods, alt. 2300–2600 m., July and October 1908 (No. **1211**, in part; bush 2–3 m. tall); Pan-lan-shan, west of Kuan Hsien, woodlands, alt. 2300–3000 m., October 1910 (Nos. **4245**, **4247**; shrub 2.5–3 m. tall); south-east of Tachien-lu, woodlands, alt. 3000–3300 m., October 1910 (No. **4271**; bush 1.5–

2.5 m. tall); without precise locality, alt. 3100–3800 m., May 1904 (Veitch Exped. No. 3972 and seed No. 1541).

Franchet describes the pedicels as glabrous, but in all our specimens they are glandular. He also describes the corolla as 8-lobed, but we find it usually 7-lobed. The crowded sub-umbellate inflorescence, the glabrous style and ovary, shorter leaves usually rounded at the base and globose winter-buds distinguish this species from *R. Davidii* Franchet.

Rhododendron Fortunei, Lindley in *Gard. Chron.* 1859, 868. — Hooker f. in *Bot. Mag.* XCII. t. 5596 (1866). — Maximowicz in *Mém. Acad. Sci. St. Pétersbourg*, sér. 7, XVI. No. IX. 21 (1870). — Hemsley in *Jour. Linn. Soc.* XXVI. 23 (1889). — Bean in *Flora & Sylva*, III. 164 (1905). — Schneider, *Ill. Handb. Laubholzk.* II. 487, fig. 322 g–i (1909). — Hemsley & Wilson in *Kew Bull. Misc. Inform.* 1910, 109.

Kiangsi: Kuling, side of stream, rare, alt. 1300 m., July 1907 (No. 1686; bush 2 m. tall).

Here belongs the following variety:

Rhododendron Fortunei, var. **Houlstonii** Rehder & Wilson, n. var.

Rhododendron Houlstonii Hemsley & Wilson in *Kew Bull. Misc. Inform.* 1910, 110.

Western Hupeh: without precise locality, May and September 1900 (Veitch Exped. Nos. 312, 609 in part, 1077 fruit only); without locality, *A. Henry* (No. 5354). Eastern Szech'uan: south Wushan Hsien, May 1900 (Veitch Exped. No. 609, in part; bush 3 m. tall, flowers rosy-pink).

This variety is distinguished from the type by its smaller, narrower leaves, usually cuneate, or very rarely rounded or subcordate at the base; more glandular pedicels, ovary and style rather smaller and slightly and somewhat differently shaped flowers. All the Hupeh specimens we have seen are referable to this variety. Both in their number and length the glands on the ovary and style show much variation. *Rhododendron Houlstonii* Hemsley & Wilson was founded on specimens with very long stipitate glands; the specimens before us show every gradation from these stipitate glands to sessile glands. It is possible that the Hupeh form is scarcely deserving of varietal rank, but for the present it seems to us desirable to consider it as a variety.

Rhododendron decorum Franchet in *Bull. Soc. Bot. France*, XXXIII. 230 (1886); in *Nouv. Arch. Mus. Paris*, sér. 2, X. 47 (*Pl. David.* II. 83) (1888). — Hemsley in *Jour. Linn. Soc.* XXVI. 22 (1889). — Diels in *Bot. Jahrb.* XXIX. 511 (1900). — Bean in *Flora & Sylva*, III. 163 (1905). — Hemsley & Wilson in *Kew Bull. Misc. Inform.* 1910, 109.

Rhododendron lucidum Franchet in *Jour. de Bot.* IX. 300 (non Nuttall) (1895) — *Gard. Chron.* ser. 3, XLVII. 121, t. (1910).
Rhododendron vernicosum Franchet in *Jour. de Bot.* XII. 258 (1898).
Rhododendron Spooneri Hemsley & Wilson in *Kew Bull. Misc. Inform.* 1910, 110.

Western Szech'uan: Mupin, woodlands, alt. 2600–3000 m., June and October 1908 (No. **1209**[a]; bush 2–2.5 m. tall, flowers pure white); in the neighborhood of Tachien-lu, thickets, alt. 2600–3300 m., June and September 1908 (No. **1209**; bush 1–2 m. tall, flowers white or pale rosy-pink); same locality, uplands, alt. 3000–3300 m., October 1910 (No. **4257**; bush 1–2.5 m. tall); same locality, alt. 2600–3600 m., June and October 1904 (Veitch Exped. No. 3975 and seed No. 1782). Yunnan: Mengtze, grassy mountains, alt. 2000 m., *A. Henry* (Nos. 9155, 9155[a]).

Rhododendron decorum is one of the most widely distributed of the Chinese Rhododendrons and with the material before us we cannot distinguish it from the plants here considered to be the same. The Tachien-lu form on which *R. Spooneri* Hemsley & Wilson was based, has smaller leaves than the type, but there are many intermediate forms. *Rhododendron lucidum* Franchet is identical with *R. Spooneri*. The thick, coriaceous, shining leaves, more straggling habit and unspotted flowers chiefly distinguish this species from *R. Fortunei* Lindley.

Group g.

Corolla 7–9-lobed. Leaves glabrous, cuneate at the base.

Rhododendron discolor Franchet in *Jour. de Bot.* IX. 391 (1895). — Hemsley & Wilson in *Kew Bull. Misc. Inform.* 1910, 112.

Rhododendron mandarinorum Diels in *Bot. Jahrb.* XXIX. 510 (1900).

Western Hupeh: north and south of Ichang, woodlands, alt. 1600–2150 m., June and October 1907 (No. **586**, in part; bush 2–4 m. tall, flowers white to rosy-pink); Changlo Hsien, woods, alt. 1600–2300 m., June 1907 (No. **586**, in part; bush 3 m. tall, flowers pink); Hsing-shan Hsien, woods, alt. 1600–2150 m., June 1907 (No. **586**, in part; bush 3–6 m. tall, flowers white); Changyang Hsien, woodlands, alt. 1500–2000 m., May 1907 (No. **586**, in part; bush 2.5–4 m. tall, flowers deep pink with dark blotch); without precise locality, June and October 1900 (Veitch Exped. Nos. 2154, 1077; flowers only). Szech'uan: south Wushan Hsien, woods, alt. 1600–1800 m., June 1907 (No. **586**, in part; bush 2–5 m. tall, flowers white); Nanch'uan, *A. von Rosthorn* (No. **2156**).

This is the common Rhododendron of the woods up to alt. 2300 m. in western Hupeh. The larger, triangular calyx-lobes, larger, differently shaped flowers and narrower, usually acute leaves distinguish it from the closely related *R. Fortunei* Lindley. The pedicels are usually glabrous but occasionally sparsely glandular as they are described in *R. mandarinorum* Diels and we can find no character by which to separate this latter plant from the typical *R. discolor* Franchet.

Rhododendron Davidii Franchet in *Bull. Soc. Bot. France*, XXXIII. 230 (1886); in *Nouv. Arch. Mus. Paris*, sér. 2, X. 45, t. 11 (*Pl. David.* II. 85, t. 11) (1888). — Schneider, *Ill. Handb. Laubholzk.* II. 485, fig. 320 f–g, 321 g (1909). — Hemsley & Wilson in *Kew Bull. Misc. Inform.* 1910, 113.

Western Szech'uan: south-east of Tachien-lu, woods, alt. 3300 m., June 1908 (No. **3415**; bush 1–4 m. tall, flowers bright rosy-red); Mupin, woodlands, alt. 3000–3300 m., October 1910 (No. **4261**; bush 3–4 m. tall); without precise locality, alt. 1300–2300 m., May 1904 (Veitch Exped. No. 3978).

The elongated rhachis of the inflorescence, glandular ovary, longer leaves, acute or shortly acuminate and cuneate at the base, and ovoid acutish winter-buds distinguish this from the closely related *R. oreodoxa* Franchet.

Rhododendron Openshawianum Rehder & Wilson, n. sp.

Frutex 6-metralis ramulis crassis virescentibus initio tomento floccoso cinereo-albido vestitis vetustioribus pallide brunneis; gemmae ovatae, obtusae, perulis basalibus longe aristatis. Folia tenuiter coriacea, oblongo-oblanceolata, acuminata, basi cuneata, margine leviter revoluta, 10–15 cm. longa et 2–3.5 cm. lata, utrinque glabra, supra obscure viridia, subtus pallidiora, reticulata, costa media supra impressa subtus elevata, nervis utrinsecus 12–14 supra leviter impressis subtus leviter elevatis; petioli crassi, 8–12 mm. longi, supra plani, initio praecipue subtus floccoso-tomentosi ut costa media in parte inferiore. Flores ignoti. Fructus 8–10, umbellato-racemosi; rhachis 1.5–2 cm. longa, sparse villosa; pedicelli crassi, 3–4.5 cm. longi, erecto patentes, glabri; capsula oblongo-ovoidea, apice fere truncata, 2.5–3 cm. longa et 1–1.2 cm. diam., glabra, multilocularis, stylo persistente circiter 3 cm. longo, stigmate magno applanato; calyx annularis, dentibus 5 minutis, glaber; semina oblonga, 3–3.5 mm. longa, flavido-brunnea, utrinque alata.

Western Szech'uan: Yung-ching Hsien, Wa-wu-shan, woodlands, alt. 2300–2800 m., September 12, 1908 (No. **3414**).

The smaller, long-acuminate leaves, and short, thick, oblong-ovoid fruits sufficiently distinguish this species from its nearest relatives *R. calophytum* Franchet and *R. sutchuenense* Franchet.

It is named for the Rev. Harry Openshaw of the American Baptist Mission, Yachou Fu, western Szech'uan, who on several occasions during the year 1908 rendered valuable services to the Arboretum Expedition.

Rhododendron sutchuenense Franchet in *Jour. de Bot.* IX. 392 (1895). — Hemsley & Wilson in *Kew Bull. Misc. Inform.* 1910, 112. — Hemsley in *Bot. Mag.* CXXXVII. t. 8362 (1911). — Schneider, *Ill. Handb. Laubholzk.* II. 1045, fig. 615 f–g. (1912).

Western Hupeh: Fang Hsien, woods, alt. 2500 m., May 1907 (No. **509**, in part; bush 6 m. tall, head 4 m. through, flowers rose with dark blotch); Hsing-shan Hsien, woods, alt. 2000–2500 m., May 1907 (No. **509**, in part; bush 6 m. and more tall, flowers rose-pink with dark blotch); Changyang Hsien, woods, alt. 1600–2200 m., May and October 1907 (No. **509**, in part; bush 2–4 m. tall, flowers rose-red with dark blotch); without precise locality, April and September 1900 (Veitch Exped. Nos. 17, 2537); without locality, *A. Henry* (Nos. 5285, 6914).

This species has larger flowers and leaves and grows to a greater size than any other species found in western Hupeh. It is very common in the woods throughout the north-west parts of the province, but is rare south of the Yangtsze river. Its short pedicels and larger, differently shaped flowers distinguish it from its near relative *R. calophytum* Franchet.

Rhododendron calophytum Franchet in *Bull. Soc. Bot. France*, XXXIII. 230 (1886); in *Nouv. Arch. Mus. Paris*, sér. 2, X. 45 (*Pl. David.* II. 83) (1888). — Hemsley & Wilson in *Kew Bull. Misc. Inform.* 1910, 112.

Western Szech'uan: Wa-shan, woods, alt. 3000 m., October 1908 (No. **1224**; bush 6 m. tall); same locality, woodlands, alt. 2600–3000 m., June 1908 (No. **1367**, in part; bush 6 m. tall, flowers rose-red, pedicels scarlet); Mupin, woodlands, alt. 2600–3150 m., June and November 1908 (No. **1367**, in part; tree 6–15 m. tall, 1–2 m. girth, flowers rosy-pink, pedicels scarlet); south-east of Tachien-lu, forests, alt. 2800–3150 m., October 1910 (No. **4279**; tree 6–15 m. tall, 0.5–2 m. girth); without precise locality, alt. 2300–3000 m., May 1904 (Veitch Exped. No. 3979).

The species is common in the forests of western Szech'uan, usually forming a tree and growing to a larger size than any other Rhododendron found in that region. The bark is cinnamon-red passing to pale brown with age. The long scarlet pedicels add greatly to the beauty of the flowers which are borne in large loose trusses. This species is very constant and we can find no variations beyond those of size. A picture of this tree will be found under No. 0265 of Wilson's collection of photographs.

Group h.

Corolla 7–9-lobed. Leaves tomentose or villose beneath.

Rhododendron auriculatum Hemsley in *Jour. Linn. Soc.* XXVI. 20 (1889). — Hemsley & Wilson in *Kew Bull. Misc. Inform.* 1910, 108.

Western Hupeh: Fang Hsien, woods around Sheng-têng-chia, alt. 2000–2300 m., May 1907 (No. **3427**, in part; bush 4–6 m. tall); Changyang Hsien, woodlands, alt. 1800–2000 m., April 1907 (No. **3427**, in part; bush 4 m. tall); without precise locality, July 1901 (Veitch Exped. No. 1467).

This magnificent plant is scattered through the woods of western Hupeh, but is nowhere common. The flowers are white or rosy-red, and do not open until July; it is the latest of all the Hupeh species to flower.

Rhododendron lacteum Franchet in *Bull. Soc. Bot. France*, XXXIII. 231 (1886). — Hemsley in *Jour. Linn. Soc.* XXVI. 26 (1889). — Bean in *Flora & Sylva*, III. 164 (1905). — Hemsley in *Bot. Mag.* CXXXVII. t. 8372 (1911). — Schneider, *Ill. Handb. Laubholzk.* II. 1046, fig. 615 d–e (1912). — Diels in *Not. Bot. Gard. Edinburgh*, V. 215 (*Pl. Chin. Forrest.*) (1912). — Mottet in *Rev. Hort.* 1912, 375, fig. 127, t.

Western Szech'uan: Ching-chi Hsien, Ta-pao-shan, woodlands, alt. 2600 m., September 16, 1908 (No. **3431**; bush 5–6 m. tall); west of Kuan Hsien, Pan-lan-shan, woods, alt. 3000–3300 m., October 1910 (No. **4254**; tree 5–8 m. tall, rare).

This species has not previously been reported from Szech'uan. Our specimens which are in ripe fruit only, appear to be identical with Franchet's plant. The undescribed fruit of this species is cylindrical, 4–4.5 cm. long, 8–10 mm. wide, furrowed, sparsely pubescent, 8–10-celled. Seeds fusiform, 3.5–5 mm. long, blackish-brown with yellowish wing. Some of the pedicels on our specimens are 0.6 cm. long.

Of the species known from Szech'uan *R. lacteum* is only exceeded in size by *R. calophytum* Franchet.

Rhododendron Watsonii Hemsley & Wilson in *Kew Bull. Misc. Inform.* 1910, 112.

Western Szech'uan: west and near Wên-ch'uan Hsien, woodlands, alt. 2600–3300 m., July and October 1908 (No. **1206**; bush 3–6 m. tall, flowers white); Mupin, woodlands, alt. 2600–3000 m., October 1910 (No. **4259**; bush 3–5 m. tall); south-east of Sungpan Ting, forests, alt. 4000 m., October 1910 (No. **4244**; bush 2–2.5 m. tall); same locality and date (No. **4251**; tree 8–10 m. tall, about 60 cm. girth); without precise locality, alt. 3000–3800 m., May and October 1904 (Veitch Exped. No. 3964, type).

Nos. 4251 and 4244 have more slender fruit than the type; in No. 4251 the leaves are white on the under side.

Subgen. III. AZALEA Planch.

Leaves never lepidote, usually pubescent or setosely hairy, sometimes glabrous, usually deciduous, rarely persistent. Ovary usually densely setose, never lepidote; corolla 5–lobed, stamens 5–10.

Sect. 1. CHIONASTRUM Franch.

Flowers from axillary buds crowded at the end of the branches; corolla funnelform with a long tube; stamens 10, exserted; ovary glabrous or hairy. Fruit cylindric. Leaves glabrous, persistent.

Rhododendron stamineum Franchet in *Bull. Soc. Bot. France*, XXXIII. 236 (1886). — Hemsley in *Jour. Linn. Soc.* XXVI. 29 (1889). — Hemsley & Wilson in *Kew Bull. Misc. Inform.* X. 1910, 116.

Rhododendron pittosporaefolium Hemsley in *Jour. Linn. Soc.* XXVI. 29 (1889). — Diels in *Bot. Jahrb.* XXIX. 515 (1900). — Bean in *Flora & Sylva*, III. 164 (1905).

Rhododendron aucubaefolium Hemsley in *Jour. Linn. Soc.* XXVI. 19 (1889), quoad flores; folia ad *Daphniphyllum macropodum* pertinent. — Bean in *Flora & Sylva*, III. 162 (1905).

Western Hupeh: Hsing-shan Hsien, woods, alt. 1300–1600 m., May and November 1907 (No. **567**; bush 3–6 m. tall, flowers white, spotted yellow, fragrant, the lobes of the corolla reflexed); Chien-shi Hsien, June 1900 (Veitch Exped. No. 758); without precise locality, *A. Henry* (Nos. 5787, 6432, 4031). Western Szech'uan: woodlands, Wa-shan, alt. 1600–1800 m., June 1908 (No. **3470**; bush 5–8 m. tall, flowers blush); Mt. Omei, woodlands, alt. 1600–2000 m., October 1910 (No. **4268**; bush 2.5–3 m. tall); same locality, May 1904 (Veitch Exped. No. 5140), *A. von Rosthorn* (No. 430).

Although nowhere really common this is a widely distributed species, and is generally found in rocky, shady ravines. The very long exserted stamens readily distinguish it from its near relatives.

Sect. 2. AZALEASTRUM Planch.

Flowers from axillary buds like those of the preceding section; corolla rotate; stamens 5–10, shorter than the corolla. Leaves persistent or deciduous, glabrous.

Rhododendron ovatum Planchon in *Rev. Hort.* 1854, 43. — Maximowicz in *Mém. Acad. Sci. St. Pétersbourg*, sér. 7, XVI. No. IX. 45 (1870). — Hemsley in *Jour. Linn. Soc.* XXVI. 28 (1889). — Hemsley & Wilson in *Kew Bull. Misc. Inform.* 1910, 120.

Azalea ovata Lindley in *Jour. Hort. Soc. London*, I. 149 (1846). — Fortune in *Jour. Hort. Soc. London*, II. 126, t. 2 (1847). — Hooker in *Bot. Mag.* LXXXIV. t. 5064 (1858).
Azalea myrtifolia Champion in *Bot. Mag.* LXXVII. sub. t. 4609 (1851).

Western Hupeh: Changyang Hsien, woodlands and cliffs, alt. 1600–2300 m., May and November 1907 (No. **1391**; bush 2–2.25 m., flowers pale pink); same locality, May 1900 (Veitch Exped. No. 719); without locality, *A. Henry* (No. 5278). Kiangsi: Kuling, thickets, alt. 1300 m., July 28, 1907 (No. **1690**; bush 1–1.5 m. tall, abundant). Chekiang: vicinity of Ningpo, 1908, *D. Macgregor*. Fokien: without locality, Dunn's Exped., April to June 1905 (Herb. Bot. Gard. Hongkong, No. 2880).

This is a not uncommon species in Hupeh, but has not been reported from farther west.

Sect. 3. Tsutsutsi G. Don (*Tsusia* Planch.)

Flowers from a terminal bud, leafy shoots from the axils of the lower scales of the same bud; stamens 5–10; ovary setose. Leaves deciduous or persistent, hairy, rarely glabrous.

Rhododendron indicum (Linnaeus) Sweet, var. **ignescens** Sweet in *Brit. Fl. Gard.* ser. 2, II. t. 128 (1833).

Azalea indica Sims in *Bot. Mag.* XXXVI. t. 1480 (1812).
Rhododendron indicum, var. *puniceum* Sweet *Brit. Fl. Gard.* ser. 2, II. sub. t. 128 (1833). — De Candolle, *Prodr.* VII. 726 (1838).
Rhododendron Simsii Planchon in *Fl. des Serr.* IX. 78 (1853).
Rhododendron Calleryi Planchon in *Fl. des Serr.* IX. 81 (1853).
Rhododendron indicum, var. *Simsii* Maximowicz in *Mém. Acad. Sci. St. Pétersbourg*, sér. 7, XVII. No. IX. 38 (1870). — Franchet in *Bull. Soc. Bot. France*, XXXIII. 235 (1886).
Azalea indica, var. *Simsii* Rehder in Bailey, *Cycl. Amer. Hort.* I. 122 (1900).

Kiangsi: Kuling, thickets, alt. 1300 m., abundant, July 28, 1907 (No. **1682**; bush 1–2 m.). Western Hupeh: Hsing-shan Hsien, thickets, alt. 1000–1800 m., May 14 and December 1907 (No. **569**; bush 1–3 m. tall, flowers scarlet); Changlo Hsien, cliffs, alt. 600–1300 m., May 1907 (No. **3472**; bush 1–2 m. tall, flowers scarlet); Changyang Hsien, thickets, alt. 1300 m., May and November 1907 (No. **3473**; bush 1–2 m. tall, flowers scarlet); north and south of Ichang, thickets, dry woods and cliffs, alt. 30–1300 m., May and November 1907 (No. **3474**; bush 1–3 m. tall, flowers scarlet); "Kao-hien-scian," alt. 800 m., May 1907, *C. Silvestri* (No. 1701). Western Szech'uan: Kiating Fu, red-sandstone hills, alt. 300–800 m., May 1908 (No. **3475**; bush 1–1.5 m. tall, flowers scarlet); Mt. Omei, May 1904 (Veitch

Exped. No. 5143); without locality, *A. von Rosthorn* (No. 2148). Yunnan: Mi-lê, forests, *A. Henry* (No. 9900[a]); Mengtze, grassy mountains, alt. 2000 m., *A. Henry* (Nos. 9900[b], 9900[c]); Szemao, alt. 1600 m., *A. Henry* (No. 9900[d]). Kwangtung: Hongkong, Happy Valley, November 5, 1903, *C. S. Sargent.* Chekiang: Chusan Islands, Pootoo, Faber.

This plant is abundant in western Hupeh and in Szech'uan up to 1500 m. altitude, where in May the thin, dry woods, cliffs and dry thickets are commonly a blaze of scarlet from its flowers. Our specimens show considerable variation in the size of the leaves but their size depends on altitude. At a low altitude the leaves are large and are all persistent, while at the upper limits of the species the leaves are very much reduced in size and are more or less deciduous. A colloquial name for this shrub is "Yin-shan-hung."

Rhododendron Mariesii Hemsley & Wilson in *Kew Bull. Misc. Inform.* 1907, 244. — Hutchinson in *Bot. Mag.* CXXXIV. t. 8206 (1908). — Schneider, *Ill. Handb. Laubholzk.* II. 496 (1909).

Rhododendron Weyrichii Hemsley in *Jour. Linn. Soc.* XXVI. 32 (non Maximowicz) (1889).
Rhododendron Farrerae, var. *leucotrichum* Franchet in *Jour. de Bot.* IX. 394 (1895). — Diels in *Bot. Jahrb.* XXIX. 513 (1900).
Rhododendron Farrerae, var. *Weyrichii* Diels in *Bot. Jahrb.* XXIX. 513 (1900).
Rhododendron Farrerae, var. *mediocre* Diels in *Bot. Jahrb.* XXIX. 514 (1900).
Rhododendron rhombicum Diels in *Bot. Jahrb.* XXIX. 514 (non Miquel) (1900).

Western Hupeh: north and south of Ichang, dry woods and cliffs, alt. 300–1300 m., May 1907 (No. **606**, in part; erect growing bush 1–2.5 m. tall, flowers rose-pink, abundant); Hsing-shan Hsien, woods and cliffs, alt. 300–1300 m., May and November 1907 (No. **606**, in part; erect bush, leaves deciduous, 1–2.5 m. tall, common); without precise locality, April 1900 (Veitch Exped. No. 29, type), *A. Henry*, Nos. 3829, 5274. Kiangsi: Kuling, thickets, alt. 1300 m., July 29, 1907 (No. **1681**; bush 1–2 m. tall, abundant). Fokien: without locality, Dunn's Exped., April to June 1905 (Herb. Bot. Gard. Hongkong, No 2882).

This and *Rhododendron sinense* Sweet are the only deciduous leaved species reported from central and western China. In the Fokien specimens the pubescence is rufous-gray; on the specimen from Kiangsi both white and rufous-gray pubescence occur on the same branch.

Rhododendron Mariesii Hemsley & Wilson, with *R. rhombicum* Miquel, *R. dilatatum* Miquel, *R. Schlippenbachii* Maximowicz, *R. Weyrichii* Maximowicz and *R. quinqueloculare* Moore & Bisset must be placed in the section *Tsutsutsi*, as in all these species the young shoots spring from the axils of the lower scales of the same terminal bud as the flowers, while in *Euazalea* they spring from separate

axillary buds below the terminal bud which produces only flowers. All these species form a very well-marked group, different from the group which is composed of *R. indicum* Sweet and its allies, and are easily distinguished even without flowers by the arrangement of the leaves which form whorls of 3–5 leaves at the end of the branchlets; on vigorous branches sometimes a few leaves also appear below the terminal whorl and these are arranged in pairs, but not opposite, and bear no axillary buds.

Rhododendron Albrechtii Maximowicz, which is usually considered as closely related to *R. Schlippenbachii* belongs to the following section.

Sect. 4. Pentanthera G. Don (*Euazalea* Maxim.).

Flowers from a terminal bud; leafy shoots from separate axillary buds below; stamens 5; ovary setose. Leaves deciduous, more or less hairy.

As the sectional name *Eu-azalea* is of more recent date and implies that this section contains the type of the genus Azalea which is not the case, it cannot be used for it.

Rhododendron sinense Sweet, *Brit. Fl. Gard.* ser. 1, III. sub. t. 290 (1829). — Hooker f. in *Bot. Mag.* XCVII. t. 5905 (1871). — Hance in *Jour. Bot.* XVI. 109 (1878). — Hemsley in *Jour. Linn. Soc.* XXVI. 30 (1889), quoad plantam sinensem. — Suringar in *Gartenfl.* LVII. 516 (1908). — Schneider, *Ill. Handb. Laubholzk.* II. 497, fig. 329 a–b (1911).

Azalea sinensis Loddiges, *Bot. Cab.* IX. t. 885 (1824). — De Candolle, *Prodr.* VII. 718 (1883).

Azalea mollis Blume, *Bijdr. Fl. Ned. Ind.* 853 (1825).

Rhododendron sinense, var. *flavescens* Sweet, *Brit. Flow. Gard.* ser. 1, III. t. 290 (1829).

Azalea pontica Linnaeus, var. *sinensis* Lindley, *Bot. Reg.* XV. t. 1253 (1829).

Rhododendron molle G. Don, *Gen. Syst.* III. 846 (1834). — Siebold & Zuccarini in *Abh. Akad. Münch.* IV. pt. III. 131 (*Fl. Jap. Fam. Nat.* II. 131) (1846).

Western Hupeh: near Ichang, conglomerate hills and pine woods, alt. 30–300 m., April 24, 1907 and February 18, 1908 (No. 800; bush 0.5–1.5 m. tall, flowers golden yellow); without locality, *A. Henry* (No. 268). Chekiang: vicinity of Ningpo, 1908, *D. Macgregor*.

This plant is rare in the neighborhood of Ichang and has not been reported from Szech'uan. The colloquial name is "Lao-hu hwa"; it is the Yang-chih-chu of Chinese books. The allied *Rhododendron japonicum* Suringar (*Azalea japonica* Gray, *R. molle* Miquel, not G. Don, nor Siebold & Zuccarini), which is often referred to this species, is easily distinguished by the leaves being only pilose on the veins beneath, by the glabrous winter-buds, the longer and narrower calyx-lobes and by the stamens being shorter than the carmine or brick-red corolla.

ENKIANTHUS Lour.

Enkianthus quinqueflorus Loureiro, *Fl. Cochin.* 277 (1790). — Sims in *Bot. Mag.* XL. t. 1649 (1814). — Lindley in *Bot. Reg.* XI. t. 884 (1825). — Decaisne in *Rev. Hort.*, 1849, 221, fig. 12. — Bentham, *Fl. Hongk.* 200 (1861). — Hemsley in *Jour. Linn. Soc.* XXVI. 18 (1889). — Wilson in *Gard. Chron.*, ser. 3, XLI. 344 (1907). — Dunn & Tutcher in *Kew Bull. Misc. Inform.* add. ser. X. 154 (*Fl. Kwangtung & Hongkong* (1912).

Melidora pellucida Noronha apud Salisbury in *Trans. Hort. Soc. Lond.* II. 156 (1822).
Enkianthus reticulatus Lindley in *Bot. Reg.* XI. t. 885 (1825). — De Candolle *Prodr.* VII. 732 (1839).
Enkianthus uniflorus Bentham in *Hooker's Jour. Bot.* I. 489 (1842).

Native of Hongkong and south-eastern China where it is also commonly cultivated.

Enkianthus quinqueflorus, var. **serrulatus** Wilson in *Gard. Chron.* ser. 3, XLI. 344 (1907).

Enkianthus serrulatus Schneider, *Ill. Handb. Laubholzk.* II. 519 (1911).

Western Hupeh: Patung, woodlands, alt. 1900 m., April 25, 1900 (Veitch Exped. No. **92**, type; tree 6 m. tall, flowers white). Eastern Szech'uan: south Wushan, sheltered ravines, alt. 1300 m., December 1907 (No. **770**; bush or small tree 1–8 m. tall); without locality, *A. Henry* (No. 5475). Yunnan: Mengtze, mountains south of, forests, alt. 1600 m., *A. Henry* (No. 11009).

Not common. We cannot follow Schneider in considering this a distinct species. All the differences are in the leaves.

Enkianthus deflexus Schneider, *Ill. Handb. Laubholzk.* II. 521 (1911).

Rhodora deflexa Griffith, *Posth. Papers* (*Itin. Notes*) II. 148, No. 969 (1848).
Enkianthus himalaicus Hooker f. & Thomson in *Hooker's Kew Jour. Bot.* VII. 125, t. 3 (1855). — Hooker f. in *Bot. Mag.* CV. t. 6460 (1879). — Clarke in Hooker f., *Fl. Brit. Ind.* III. 461 (1882). — Wilson in *Gard. Chron.* ser. 3, XLI. 344 (1907).

Western Szech'uan: Wa-shan, on cliffs, alt. 2300–3300 m., June and October 1908 (No. **1155**; bush 2–6 m., flowers orange and gold to salmon-red); Ching-chi Hsien, Ta-hsiang-ling, rocky places, alt. 1600–2600 m., May 1908 (No. **3550**; bush 2–4 m., flowers orange and yellow); Mupin, cliffs, alt. 2500–3300 m., July 1908 (No. **3551**; bush 3–6 m. tall,

flowers deep salmon-red); same locality, alt. 3300 m., October 1910 (No. **4336**; bush 3–6 m., autumn tints golden to crimson); without precise locality, woods, alt. 2600–3600 m., July and November 1903 (Veitch Exped. No. 3912); vicinity of Tachien-lu, *A. E. Pratt* (No. 8).

One of the commonest and most beautiful shrubs in western Szech'uan. It is very variable in every way but the leaves are always more or less pubescent on the under side.

Enkianthus chinensis Franchet in *Jour. de Bot.* IX. 371 (1895). — Wilson in *Gard. Chron.* ser. 3, XLI. 363 (1907). — Schneider, *Ill. Handb. Laubholzk.* II. 521 (1911).

Enkianthus himalaicus, var. *chinensis* Diels in *Bot. Jahrb.* XXIX. 508 (1900).
Enkianthus Rosthornii Diels in *Bot. Jahrb.* XXIX. 509 (1900).

Western Hupeh: Fang Hsien, woodland-cliffs, alt. 1600–2600 m., May and September 1907 (No. **3548**; bush 2–6 m. erect-growing); Patung Hsien, rocky places, alt. 1300–2000 m., May and November 1907 (No. **3549**; bush 1–6 m. tall, flowers salmon); Hsing-shan Hsien, cliffs, alt. 1600–2000 m., June 1907 (No. **3547**; bush 2–4 m. tall, flowers salmon-red); Patung, May 1901 (Veitch Exped. No. 1002); without locality, *A. Henry* (Nos. 6612, 6277). Szech'uan: Nanch'uan, *A. von Rosthorn* (No. 2080). Nanch'uan: Chao-chia-ai, *A. von Rosthorn* (No. 1053, type of *E. Rosthornii* Diels).

This is a fairly common shrub in western Hupeh. The leaves are very variable, but its glabrous character and larger fruits easily distinguish this species from its nearest relation, *E. deflexus* Schneider. On No. 3547 some of the leaves are identical with those of *E. Rosthornii* Diels, while others on the same branch agree with those of the plant Diels has referred to *E. himalaicus*, var. *chinensis*. With the material before us there can be little doubt that these forms are all referable to one species.

CASSIOPE D. Don

Cassiope selaginoides Hooker f. & Thomson in *Hooker's Kew Jour. Bot.* VII. 126, t. 4 (1855). — Clarke in Hooker f., *Fl. Brit. Ind.* III. 460 (1882). — Hemsley in *Jour. Linn. Soc.* XXVI. 16 (1889). — Diels in *Bot. Jahrb.* XXIX. 515 (1900).

Western Szech'uan: neighborhood of Tachien-lu, beneath Rhododendrons, alt. 3600–4500 m., July and October 1908 (No. **1182**; flowers pure white, abundant); same locality, alt. 4000–4500, m. October 1910 (No. **4377**; shrub 10–25 cm. tall); without locality, alt. 4000–4300 m., July 1903 (Veitch Exped. No. **3912**); without locality, *A. Henry* (No. 8871).

Abundant under Rhododendron bushes on the alpine moorlands near Tachien-lu. A picture of this species will be found under No. 205 of the collection of Wilson's photographs and also in his *Vegetation of Western China*, No.145.

PIERIS D. Don

Pieris ovalifolia D. Don in *Edinb. Phil. Jour.* XVII. 159 (1834). — De Candolle, *Prodr.* VII. 599 (1839). — Clarke in Hooker f., *Fl. Brit. Ind.* III. 460 (1882). — Léveillé in *Bull. Soc. Bot. France*, LIII. 204 (1906).

Andromeda ovalifolia Wallich in *As. Research.* XIII. 391, fig. (1820); *Cat.* No. 763 (1828). — D. Don, *Prodr. Fl. Nepal.* 148 (1825). — Wight, *Icon.* IV. t. 1199 (1850).
Lyonia ovalifolia Drude in Engler & Prantl, *Nat. Pflanzenfam.* IV. pt. I. 44 (1889).

Yunnan: Mengtze, mountains northwards, alt. 1600 m., *A. Henry* (Nos. 9091, 9091[b], 9091[e], 9091[f], in part); Szemao, mountains, alt. 1600 m., *A. Henry* (No. 9091[r], in part).

Pieris ovalifolia, var. **lanceolata** Clarke in Hooker f., *Fl. Brit. Ind.* III. 461 (1882). — Hemsley in *Jour. Linn. Soc.* XXVI. 17 (1889). — Léveillé in *Bull. Soc. Bot. France*, LIII. 204 (1906).

Andromeda lanceolata Wallich in *As. Research.* XIII. 390, fig. (1820). — Wight *Icon.* IV. t. 1198 (1850).
Andromeda squamulosa D. Don, *Prodr. Fl. Nepal.* 149 (1825).
Pieris lanceolata D. Don in *Edinb. Phil. Jour.* XVII. 159 (1834). — De Candolle, *Prodr.* VII. 599 (1839). — Hance in *Jour. Bot.* XVI. 12 (1878).

Western Szech'uan: south-east of Tachien-lu, woods, alt. 2300–3000 m., June and October 1908 (No. **1240**; bush 1–2 m. tall, flowers white); Tung Valley, alt. 1000–1900 m., May and July 1904 (Veitch Exped. Nos. 3920, 3921[a]). Yunnan: vicinity of Mengtze, alt. 1600–1800 m., *A. Henry* (Nos. 9623[a], 10510, 10510[a], 10510[c], 11268).

This is a common plant in dry woodlands throughout western China. The large, greenish-colored sepals and the leaves narrowed at the base distinguish this variety from the type. The same characters and the much more coriaceous leaves distinguish it from the more widely distributed var. *elliptica*.

Pieris ovalifolia, var. **elliptica** Rehder & Wilson, n. var.

Andromeda elliptica Siebold & Zuccarini in *Abh. Akad. Münch.* IV. pt. III. 126 (*Fl. Jap. Fam. Nat.* II. 2) (1846). — Schneider, *Ill. Handb. Laubholzk.* II. 532, fig. 346 p–r, 347 e–g (1911).
Andromeda ovalifolia Maximowicz in *Bull. Acad. Sci. Pétersbourg* XVIII. 50 (non Wallich) (1872); in *Mél. Biol.* VIII. 620 (1872).

Pieris ovalifolia Hemsley in *Jour. Linn. Soc.* XXVI. 17 (non D. Don) (1889). — Diels in *Bot. Jahrb.* XXIX. 515 (1900). — Shirasawa, *Icon. Ess. For. Jap.* II. t. 60 (1908). — Dunn & Tutcher in *Kew Bull. Misc. Inform.* add. ser. X. 154 (*Fl. Kwangtung & Hongkong*) (1912).
Lyonia ovalifolia Pampanini in *Nuov. Giorn. Bot. Ital.* n. ser. XVII. 683 (non Drude) (1910).

Western Hupeh: north and south of Ichang, thickets and woodlands, alt. 1300–2000 m., June and October 1907 (No. **492**; bush 2–3 m. tall, flowers white); Patung Hsien, woodlands, alt. 1300–1600 m., July 1907 (No. **492**[a]; bush 2–4 m. tall, flowers white); Fang Hsien, thickets, alt. 1600–2000 m., July and November, 1907 (No. **3188**; bush 2–3 m. tall, flowers white); Changyang Hsien, woodlands, alt. 1300–1600 m., June and November (No. **3189**; bush 1.5–3 m. tall, flowers white); without locality, June 1900 (Veitch Exped. Nos. 1041, 1093); without locality, *A. Henry* (Nos. 5806[a], 6128, 7432). Szech'uan: Wa-shan, woods, alt. 1300–2000 m., July and October 1908 (No. **1157**; bush 1.5–2 m. tall, flowers white); west and near Wên-ch'uan Hsien, alt. 1600–2300 m., July and November 1908 (No. **1240**[a]; bush 1–2.5 m. tall, flowers white); Mupin, woodlands, alt. 2000 m., June 1908 (No. **3190**; bush 1.5–2 m. tall, flowers white); Mt. Omei, June 1904 (Veitch Exped. No. 5137), *A. von Rosthorn* (No. 2138[a]). Yunnan: Mengtze, *A. Henry* (Nos. 9091, 9091[d]). Chekiang: vicinity of Ningpo, 1908, *D. Macgregor;* near Han-chow, June 1907, *F. N. Meyer* (No. 396).

This is one of the commonest shrubs in thickets and the margins of pine and oak woods preferring rather dry exposed situations. The smaller fruits and thinner leaves distinguish this plant from the type. In all other characters it is variable. The Japanese form has usually shorter racemes.

Pieris villosa Hooker f. apud Clarke in Hooker f., *Fl. Brit. Ind.* III. 461 (1882). — Dunn in *Jour. Linn. Soc.* XXXIX. 476 (1911).

Andromeda villosa Wallich, *Cat.* No. 762 (nomen nudum) (1828).

Western Szech'uan: Wa-shan, woodlands, alt. 1300–2000 m., June 1908 (No. **3192**; bush 1–1.5 m. tall, flowers white); Tachien-lu, thickets, alt. 2300–2600 m., June 1908 (No. **3193**; bush 2–4 m. tall, flowers white); north-east of Tachien-lu, alt. 3000–3300 m., July 7, 1908 (No. **3194**; bush 1–2 m. tall, flowers white); without precise locality, woods, alt. 3300–3700 m., July 1903 (Veitch Exped. No. 3922); vicinity of Tachien-lu, *A. E. Pratt* (Nos. 189, 475).

Common as an undergrowth in pine woods.

Pieris villosa, var. **pubescens** Rehder & Wilson, n. comb.

Pieris ovalifolia, var. *pubescens* Franchet in *Nouv. Arch. Mus. Paris*, sér. 2, X. 44 (*Pl. David.* II. 82) (1887).

Western Szech'uan: west and near Wên-ch'uan Hsien, alt. 2000 m., July 1908 (No. **3191**; bush 1 m. tall, flowers white).

This variety is chiefly distinguished from the type by its pubescent ovary. Our specimen differs from Franchet's description in the glabrescent calyx; in the specimens of typical *P. villosa* the calyx is rather densely pubescent, but the ovary is glabrous; this separates Franchet's variety from typical *Pieris villosa*.

GAULTHERIA L.

Gaultheria Veitchiana Craib in *Gard. Chron.* ser. 3, LII. 188 (1912).

Gaultheria fragrantissima, var. *hirsuta* Franchet in *Nouv. Arch. Mus. Paris*, sér. 2, X. 44 (*Pl. David.* II. 82) (non Clarke) (1887).

Western Szech'uan: Mupin, thickets, alt. 2300–2800 m., June to August 1908 (No. **829**; decumbent shrub, 0.3–1 m. tall, flowers white, fruit indigo blue); south-east of Tachien-lu, thickets, alt. 2600 m., June 1908 (No. **829**[a]); Ching-chi Hsien, Ta-hsiang-ling, alt. 2600–3000 m., August 1908 (No. **829**[b]; shrub 0.3–0.75 m. tall); west of Kuan Hsien, summit of Niu-tou-shan, alt. 3300 m., June 20, 1908 (No. **2712**; shrub 20–30 cm. tall, flowers white); without precise locality, alt. 2000–3300 m., May 1904 (Veitch Exped. No. 3916, type).

This species is widely distributed in western Szech'uan, growing on most mountain-sides, margins of woods and thickets. Usually the branches are prostrate or nearly so, but occasionally it forms a bush 3 ft. tall. In No. 2712 all the flowers are globose in shape, but otherwise agree with those of the type. *Gaultheria Veitchiana* is a very charming little shrub with its evergreen leaves, white flowers and indigo-blue fruits. It is in cultivation and is perfectly hardy in England.

Gaultheria pyroloides Hooker f. & Thomson apud Miquel in *Ann. Mus. Bot. Lugd.-Bat.* I. 30 (1864). — Maximowicz in *Bull. Acad. Sci. St. Pétersbourg*, XVIII. 44 (1872).

Gaultheria pyrolaefolia Clarke in Hooker f., *Fl. Brit. Ind.* III. 457 (1882).

Wilson's specimens differ distinctly from the type and are referred to the following variety.

Gaultheria pyroloides, var. **cuneata** Rehder & Wilson, n. var.

Frutex 15–50 cm. altus; ramuli hornotini dense et minute villosuli, graciles. Folia coriacea, obovata v. oblongo-obovata, rarius oblanceo-

lata, acutiuscula, mucronata, basi cuneata, 1.5–3 cm. longa et 6–10 mm. lata, crenato-serrata, glabra, supra nitentia, subtus pallidiora paleolis minutis parte conspersa. Racemi puberuli; ovarium sericeo-villosulum. Fructus maturesceus coeruleus, demum albus; capsula extus sericeo-villosa. Ceterum ut in typo.

Western Szech'uan: west and near Wên-ch'uan Hsien, woodlands, on most rocks, alt. 2000–2600 m., July and September 1908 (No. **920**, type; shrub 30–45 cm. tall, flowers white, fruit snow-white); Wa-shan, wet rocks, alt. 2000–2800 m., July and September 1908 (No. **920**[a]; shrub 15–45 cm. tall, flowers white, fruit snow-white); Mupin, humus-clad rocks, alt. 2300 m., October 1910 (No. **920**[b]; 15–30 cm. tall, fruit white).

This variety is quite common on humus-clad rocks in moist woods in western Szech'uan. The fruit at first blue becomes snow-white at maturity and is most attractive. From the type it differs chiefly in its narrower cuneate and acutish leaves, in the more pubescent branchlets and in the villose ovary and capsule.

Gaultheria nummularioides D. Don, *Prodr. Fl. Nepal.* 150 (1825). — Wallich, *Cat.* No. 1524 (1828). — Royle, *Ill.* 260, t. 63, fig. 2 (1839). — Clarke in Hooker f., *Fl. Brit. Ind.* III. 457 (1882). — Franchet in *Nouv. Arch. Mus. Paris*, sér. 2, X. 44 (*Pl. David.* II. 82) (1887).

Gaultheria repens Blume, *Bijd. Fl. Nederl. Ind.* 857 (1826).
Gaultheria Nummulariae De Candolle, *Prodr.* VII. 592 (1839).
Gaultheria Griffith, *Icon. Pl. As.* t. 518, fig. 2 (1854).
Pernettya repens Zollinger, *Cat.* No. 138 (1854).

Western Szech'uan: Wa-shan, woodlands, alt. 2300–2600 m., September 1908 (No. **924**; prostrate over rocks, fruit blue-black); south-east of Tachien-lu, alt. 2600–3000 m., October 1910 (No. **4124**; creeping shrub, fruits black); without precise locality, alt. 2500 m., July 1903 (Veitch Exped. No. 3911).

This species is rather common in moist shady places growing on humus-clad rocks, old tree trunks and mossy banks.

Gaultheria nummularioides, var. **elliptica** Rehder & Wilson, n. var.

Fruticulus prostratus ramis saepe adscendentibus. Folia elliptica v. ovato-elliptica, acuta mucronataque, basi late cuneata, 8–10 mm. longa et 3.5–5.5 mm. lata, nervis supra impressis et venulis leviter impressis. Ceterum ut in typo.

Western Szech'uan: Hung-ya Hsien, near Wa-wu-shan, on moist rocks, alt. 1000 m., September 8, 1908 (No. **2708**).

The elliptic leaves cuneate at the base readily distinguishes this variety from the type.

Here may be added the following rare species which was not collected during the Arboretum Expedition.

Gaultheria trichophylla Royle, *Ill.* 260, t. 63, fig. 3 (1839). — De Candolle, *Prodr.* VII. 592 (1839). — Clarke in Hooker f., *Fl. Brit. Ind.* III. 457 (1882). — Dunn in *Jour. Linn. Soc.* XXXIX. 451 (1911).

Western Szech'uan: without precise locality, alt. 4600 m., July 1904 (Veitch Exped. No. 3915; flowers white, fruit blue); vicinity of Tachien-lu, *A. E. Pratt* (No. 833).

A very rare plant occurring in the forests west of Tachien-lu. Clarke (l. c.) says the pedicels are densely clothed with ovate bracts but in Royle's figure, as in the specimens before us, the pedicels are naked except for two bracteoles immediately below the calyx. The fruits and leaves are slightly larger than they are described by Clarke and each anther-cell has two straight, recurved awns, not one as figured for the Indian form.

ARCTOUS Niedenz.[1]

Arctous alpinus Niedenzu in *Bot. Jahrb.* XI. 180 (1889).—Schneider, *Ill. Handb. Laubholzk.* II. 545, fig. 356 l–r (1911).

Arbutus alpina Linnaeus, *Sp. Pl.* 395 (1753). — Sowerby, *Eng. Bot.* XXIX. t. 2030 (1809).

Mairania alpina Desvaux in *Jour. de Bot.* I. 37 (1813). — Britton & Brown, *Ill. Fl.* II. 573, fig. 2777 (1897).

Arctostaphylos alpina Sprengel, *Syst.* II. 287 (1825). — Hallier, *Fl. Deutsch.* XX. 112, t. 2041 (1885).

Arctous alpinus, var. **ruber** Rehder & Wilson, n. var.

A typo recedit fructu rubro.

Western Szech'uan: north-east of Sungpan, by the side of stream rich in calcareous deposits, near Temple of Wang-lung-shih, alt. 3300 m., August 22, 1910 (No. **4025**; shrub 10–15 cm. tall, fruit globose, scarlet).

The discovery of this circumpolar plant in western China is very interesting.

The same variety with red fruit occurs in north-western North America (Alberta: Sulphur Mts. near Banff, August 8, 1904, and Lake Louise near Laggan, August 12, 1904, *Alfred Rehder*).

It seems to be the common form of western North America, as the following references kindly furnished us by Professor M. L. Fernald tend to show: Richardson, *Arct. Searching Exped.* 533 (1851): " Arctostaphylos alpina . . . There are

[1] Britton & Brown, *Ill. Fl.* II. 572 (1897) take up *Mairania* Necker, *Elem. Bot.* I. 219 (1790) as the oldest generic name of this genus. *Mairania*, however, must be referred as a synonym to *Arctostaphylos* Adanson (1763); its type species is *Arctostaphylos uva-ursi* (Linnaeus) Sprengel, as Necker's quotation "Quaed. Arbut. Linn. Uva ursi Tournef." clearly shows, and also his description of the fruit as " drupa . . . loculis singulis *nucleum* foventibus."

two varieties, one with bright red and more juicy fruit . . . The two kinds are exactly alike in foliage."

Macoun, *Cat. Canad. Pl.* I. 294 (1883): "Both Hooker and Gray state that the berries of this species are black, on the contrary, those on specimens obtained on Anticosti and the Rocky Mountains are bright red."

Stewardson Brown, *Alp. Fl. Canad. Rocky Mts.* 215 (1907): "berry bright scarlet."

The plant of eastern North America has bluish black fruit like that of Europe. There seems to be also a difference in foliage: the leaves of the red-fruited variety, both in the Asiatic and American specimens, are thinner and larger, while those of the typical form are smaller and of firmer texture.

VACCINIUM L.

Subgen. EPIGYNIUM Drude.

Vaccinium Donianum Wight, *Icon.* t. 1191 (1850). — Clarke in Hooker f., *Fl. Brit. Ind.* III. 453 (1882).

Vaccinium affine Wight, *Icon.* IV. t. 1190 (1850).
Epigynium affine Klotzsch in *Linnaea*, XXIV. 50 (1851).
Epigynium Donianum Klotzsch (l. c.) 51.
Vaccinium mandarinorum Diels in *Bot. Jahrb.* XXIX. 516 (1900).

Kiangsi: Kuling, side of streams and in thickets, alt. 1300 m., July 1907 (Nos. **1700**, **1701**, **1704**; shrubs 1–2 m. tall). Western Hupeh: Patung Hsien, woods, alt. 1300–1600 m., August 1907 (No. **2705**; bush 2.5–4 m. tall, flowers white); Changyang Hsien, woods, alt. 1300 m., July 1907 (No. **2706**; bush 1.5–2 m. tall, flowers white); Patung Hsien, woodlands, alt. 1300–1600 m., June 1907 (No. **2710**; bush 2–3 m. tall, flowers white); same locality, June 1900 (Veitch Exped. No. 1010); without locality, *A. Henry* (Nos. 3918, 4526, 6129, 7660 in part, and 5807[b], type of *V. mandarinorum* Diels). Western Szech'uan: Mt. Omei, May 1904 (Veitch Exped. No. 5134). Yunnan: Szemao, mountains, *A. Henry* (Nos. 11626, 11917, 12745).

This is an exceedingly variable plant, common in woodlands and thickets. The leaves vary in size and shape, and the shoots and racemes from glabrous to pubescent; the pedicels vary in length from 2–10 mm. and are glabrous or pubescent; in No. 1010 the calyx is also sparsely pubescent. With the large series of specimens before us we cannot distinguish between the common Chinese and Indian forms. Diels' type of *V. mandarinorum* (*Henry* No. 5807[b]) seems to us identical with Wight's figure, which constitutes the type of *V. Donianum;* probably comparisons were made between some of the Hookerian specimens and not with the type figures.

Clarke (Hooker f. *Fl. Brit. Ind.* III. 453) cites *Agapetes Sprengelii* G. Don. (*Gen. Syst.* III. 862 [1834]) as a synonym of *V. Donianum* Wight, and the same view is taken in the *Index Kewensis.* In this case "*Sprengelii*" would be the oldest

specific name. Don's description, however, does not agree very well with Wight's figure. As a specific name *Sprengelii* is somewhat involved. There is a *Vaccinium Sprengelii* Wallich, *Cat.* No. 6296 which is referred to *Agapetes obovata* by Clarke and the *Index Kewensis*. Also a *Vaccinium Sprengelii* Hort. which is referred to *V. Myrsinitis* in the *Index Kewensis*. As there would appear to be some doubt, if Don's *Agapetes Sprengelii* is identical with Wight's *Vaccinium Donianum*, and as the name *Sprengelii* is connected with two other plants of this group it appears to us best to retain Wight's name for the species as was done by Clarke (l. c.) and in the *Index Kewensis*.

Vaccinium Donianum, var. **laetum** Rehder & Wilson, n. var.

Vaccinium laetum Diels in *Bot. Jahrb.* XXIX. 516 (1900).

Western Szech'uan: Kiating Fu, thickets, alt. 300 m., May 1908 (No. **2707**; bush 2–3 m., flowers white); without precise locality, banks of Yangtsze river, May 1903 (Veitch Exped. No. 3918); without locality, alt. 1500 m., May 1904 (Veitch Exped. No. 3918[a]).

The rather small, sharply serrate leaves, short racemes and twiggy branches distinguish this variety which, however, is very near some of the extreme forms of the type. It is a low-level and a rather uncommon plant.

Vaccinium Carlesii Dunn resembles this variety but has a much smaller and a differently shaped corolla.

Vaccinium iteophyllum Hance in *Ann. Sci. Nat.* sér. 4, XVIII. 223 (1862). — Hemsley in *Jour. Linn. Soc.* XXVI. 15 (1889). — Dunn & Tutcher in *Kew Bull. Misc. Inform.* add. ser. X. 153 (*Fl. Kwangtung & Hongkong*) (1912).

Fokien: without locality, 1905, Dunn's Exped. (Herb. Bot. Gard. Hongkong, No. 2877). Yunnan: Szemao, forests, alt. 1600 m., *A. Henry* (Nos. 11648, 11648[a]).

In Henry's specimens the leaves are only slightly and irregularly serrate.

Vaccinium iteophyllum, var. **fragrans** Rehder & Wilson, n. var.

A typo recedit foliis oblanceolatis v. rarius lanceolatis, 6–10 cm. longis et 2.5–3.5 cm. latis leviter et remote serrulatis subtus sparsius pubescentibus demum glabrescentibus, inflorescentia sparsius pubescente, antheris aristatis.

Western Hupeh: Hsing-shan Hsien, alt. 1000–1300 m., rare, June 4, 1907 (No. **2704**; bush 2.5 m. tall, flowers snow-white, fragrant).

The larger, very slightly toothed leaves and aristate anthers distinguish this variety.

Vaccinium bracteatum Thunberg, *Fl. Jap.* 156 (1784). — De Candolle, *Prodr.* VII. 573 (1839). — Siebold & Zuccarini in *Abh. Akad.*

Münch. IV. pt. III. 129 (*Fl. Jap. Fam.* II. 5) (1846). — Miquel in *Ann. Mus. Lugd.-Bat.* II. 160 (1865–1866). — Maximowicz in *Bull. Acad. Sci. St. Pétersbourg*, XVIII. 42 (1872); in *Mél. Biol.* VIII. 608 (1872). — Franchet & Savatier, *Enum. Pl. Jap.* I. 282 (1875). — Franchet in *Nouv. Arch. Mus. Paris*, sér. 2, VI. 75 (*Pl. David.* I. 195 (1883)). — Hemsley in *Jour. Linn. Soc.* XXVI. 14 (1889). — Shirasawa, *Icon. Ess. For. Jap.* II. t. 61, fig. 11–22 (1908). — Dunn & Tutcher in *Kew Bull. Misc. Inform.* Add. ser. X. 153 (*Fl. Kwangtung & Hong-kong*) (1912).

Andromeda chinensis Loddiges, *Bot. Cab.* XVII. t. 1648 (1830).
Vaccinium chinense Champion in *Hooker's Kew Jour. Bot.* IV. 297 (1852). — Bentham, *Fl. Hongk.*, 199 (1861).
Vaccinium Donianum, var. *elliptica* Miquel in *Ann. Mus. Lugd.-Bat.* II. 161 (1865–1866).
Vaccinium Oldhamii Miquel in *Ann. Mus. Lugd.-Bat.* II. 161 (1865–1866).

Kiangsi: Kuling, side of streams, alt. 1300 m., July 29, 1907 (No. **1702**; dense bush 1–1.5 m. tall, flowers white). Western Hupeh: Nanto and mountains to northward, *A. Henry* (No. 3067). Chekiang: vicinity of Ningpo, 1908, *D. Macgregor*. Korea: Quelpaert, *Taquet* (Nos. 1083, 1084, 4304); same locality, *U. Faurie* (No. 660).

This variable species is very common on the Lushan range near Kuling, but is rare in western Hupeh.

We have before us the type specimen of *Vaccinium Wrightii* Gray (in *Mem. Am. Acad.* n. ser. VI. 398 [1858–1859]), which Hemsley (in *Jour. Linn. Soc.* XXVI. 14 [1889]) reduces to *Vaccinium bracteatum* Thunberg. Gray's species constitutes a well-marked variety of that species, readily distinguished by its long pedicels (8–11 mm.) and glabrous calyx. It may be distinguished as **Vaccinium bracteatum**, var. **Wrightii** Rehder & Wilson, n. var. Specimen collected at South Cape, Formosa, by *A. Henry* (Nos. 591, 636, 947) belong to this variety. The type was collected at Orisima, Liu-kiu Islands, *Wright* (No. 170 in Herb. Gray).

Vaccinium fragile Franchet in *Jour. de Bot.* IX. 366 (1895).

Vaccinium setosum Wright in *Kew Bull. Misc. Inform.* 1896, 24.

Western Szech'uan: south-east of Tachien-lu, rocks and arid places, alt. 1300–2000 m., June and September 1908 (No. **1079**; bush 14–30 cm. tall, flowers salmon-red, fruit black); without precise locality, pine woods, alt. 1000–1600 m., May 1904 (Veitch Exped. No. 3917; shrub 20–45 cm. tall, flowers white); June 1903 (Veitch Exped. No. 3917[a]). Yunnan: Mengtze, grassy mountains, alt. 2100 m., *A. Henry* (No. 10904).

Some of our specimens agree with Franchet's variety *α. crinita*, others with his *β. myrtifolia;* others are intermediate between these varieties. The leaves vary considerably in shape even on the same shoots as does the development of setae and pubescence. With the evidence before us we do not think the above varieties of Franchet should be retained. *Vaccinium setosum* Wright is identical and was probably described without knowledge of Franchet's name.

Vaccinium Dunalianum Wight, *Icon.* IV. t. 1194 (1850). — Clarke in Hooker f., *Fl. Brit. Ind.* III. 453 (1882). — Dunn in *Jour. Linn. Soc.* XXXIX. 503 (1911).

Epigynium Dunalianum Klotzsch in *Linnaea,* XXIV. 51 (1851).
Thibaudia revoluta Griffith, *Icon. Pl. As.* IV. t. 513 (1854).

Western Szech'uan: Mupin, on rocks, alt. 1000–1300 m., October 1910 (No. **4294**; bush 1–3 m. tall, fruit black); Mt. Omei, June 1904 (Veitch Exped. No. 5138; bush 6 m. tall). Yunnan: Mengtze, alt. 2000 m., *A. Henry* (Nos. 9170, 9170[b], 9170[e]); Yuan-chiang, alt. 1600 m., *A. Henry* (No. 13404).

This is a very rare plant in Szech'uan, differing in no marked manner from the typical Indian form.

A new variety of this species is the following:

Vaccinium Dunalianum, var. **urophyllum**, Rehder & Wilson, n. var.

A typo recedit ramulis hornotinis breviter denseque villosulis, foliis ellipticis, subito caudato-acuminatis, costa venisque utrinque elevatis conspicuis, costa subtus et petiolis villosulis.

Yunnan: Mengtze, mountains to the south-east, in forests, *A. Henry* (No. 9170[c]).

This variety is easily distinguished by the puberulous shoots and petioles and the long-caudate leaves.

Vaccinium urceolatum Hemsley in *Jour. Linn. Soc.* XXVI. 16 (1889).

Western Szech'uan: Hung-ya Hsien, on red-sandstone rocks, alt. 800 m., June and October, 1908 (No. **1072**, in part; bush 60 cm.–2 m. tall, flowers pink, fruits black); Wa-shan, on rocks, alt. 2000–2600 m., October 1908 (No. **1072**, in part; bush 1–2 m. tall, fruit black). Mt. Omei, June and November 1904 (Veitch Exped. Nos. 3924, 5136);

This plant is common in the above localities and is partial to sandstone boulders.

Vaccinium moupinense Franchet in *Nouv. Arch. Mus. Paris,* sér. 2, X. 43 (*Pl. David.* II. 81) (1887).

Western Szech'uan: Mupin, on cliffs and tree-trunks, alt. 2300–2800 m., June and November 1908 (No. **1259**; bush 60–120 cm. tall, flowers rose-pink, fruit black); same locality, alt. 2300–2600 m.,

October 1910 (No. 4320; shrub 60–75 cm. tall, fruit purple-black); without locality, alt. 2600 m., July 1903 (Veitch Exped. No. 3914).

This species is very common as an epiphyte on old trees, and is also frequently found growing on humus-clad rocks and cliffs. In our specimens the flowers are rose-pink, the leaves are cuneate at the base and the plants grow to a larger size than those described by Franchet.

In this subgenus also belongs the following undescribed species:

Vaccinium viburnoides Rehder & Wilson, n. sp.

Frutex 30–60 cm. altus ramis crassiusculis; ramuli hornotini leviter angulati, initio sparse puberuli, mox glabri, annotini flavido-cinerei, vetustiores brunneo-grisei, lenticellati. Folia coriacea, ovalia v. obovata v. elliptica, acutiuscula v. rotundata, basi late cuneata, crenato-serrulata dentibus adpressis mucrone calloso incurvo, saepe infra medium integra, 3.5–5.5 longa et 2–3 cm. lata, supra lacte viridia, nitentia rugulosa, ad costam mediam puberula, subtus pallidiora, glabra, nervis utrinsecus 5–6, ut costa supra impressis subtus elevatis; petioli crassi, 3–4 mm. longi, interdum puberuli. Racemi terminales et axillares in apice ramulorum congesti, breves, 5–8-flori; rhachis crassiuscula, puberula, 8–12 mm. longa; bracteae deciduae, membranaceae coloratae, late ovales v. ovatae 7–8 mm. longae, acutae v. obtusae, ciliolatae; bracteolae similes, sed minores, deciduae; pedicelli 3–5 mm. longi, glabri; calyx glaber tubo hemisphaerico, lobis latissimis rotundatis circiter 0.7 mm. longis ciliolatis; corolla urceolata, circiter 6 mm. longa, salmoneo-rosea, extus intusque glabra, lobis minutis recurvis intus puberulis; stamina corolla breviora, filamentis basi dilatatis pilosis, antheris 2.5 mm. longis dorso breviter bicalcaratis; stylus stamina superans, inclusus, glaber, rectus, cylindricus, stigmate leviter capitato. Fructus maturus desideratur.

Western Szech'uan: without precise locality, July 1904 (Veitch Exped. No. 3923).

This is a very distinct species and is not closely related to any Chinese or Indian species. Its nearest relative is perhaps the variable *Vaccinium Leschenaultii* Wight which, however, is a much taller growing plant with less coriaceous leaves, thinner branches, longer racemes, shorter pedicels, and rather differently shaped flowers and calyx-teeth.

Vaccinium viburnoides is a very rare plant, having been collected only once.

Also the recently described *Vaccinium Wardii* Adamson (in *Jour. Bot.* LI. 130 [1913]) belongs according to its author in this subgenus, but we suspect that it is not a Vaccinium at all, but identical with or very near to *Gaultheria Veitchiana* Craib with which the rather unsatisfactory description fairly well agrees.

Subgen. EUVACCINIUM A. Gray.

Vaccinium Henryi Hemsley in *Jour. Linn. Soc.* XXVI. 15 (1889). — Diels in *Bot. Jahrb.* XXIX. 516 (1900).

Western Hupeh: Hsing-shan Hsien, woods, alt. 1000–1600 m., September 1907 (No. 2703; bush 1–3 m. tall, fruit black); without locality, July 1900 (Veitch Exped. No. 1491); without locality, *A. Henry* (Nos. 4826, 6829, 6623, 5911, 4703, 7937).

This plant is fairly common in oak woods in western Hupeh.

Subgen. OXYCOCCUS Hook.

Vaccinium japonicum Miquel in *Ann. Mus. Lugd.-Bat.* I. 28 (1863–1864). — Maximowicz in *Bull. Acad. Sci. St. Pétersbourg*, XVIII. 40 (1870); in *Mél. Biol.* VIII. 604 (1872). — Franchet and Savatier, *Enum. Fl. Jap.* I. 280 (1875). — Hemsley in *Jour. Linn. Soc.* XXVI. 16 (1889). — Pampanini in *Nuov. Giorn. Bot. Ital.* n. ser. XVII. 683 (1910). — Schneider, *Ill. Handb. Laubholzk.* II. 561 (1911).

Western Hupeh: Changyang, woodlands, alt. 1300 m., October 1907 (No. **244**; shrub 30–60 cm. tall, fruit dark scarlet); without locality, August 1900 (Veitch Exped. No. 1621); without locality, *A. Henry* (Nos. 6021, 6431ª, 2826). Eastern Szech'uan: north Wushan, *A. Henry* (No. 6431). Western Szech'uan: west and near Wên-ch'uan Hsien, woodlands, alt. 1300–2000 m., October 1908 (No. **971**; bush 30–60 cm., fruit red).

This species is common in dry situations in open woods of Pine and Oak. The Chinese plant appears to have usually narrower leaves than the Japanese plant.

LOGANIACEAE.

Determined by ALFRED REHDER and E. H. WILSON.

GARDNERIA Wall.

Gardneria multiflora Makino in *Tokyo Bot. Mag.* XV. 103 (1901).

Gardneria nutans Hemsley in *Jour. Linn. Soc.* XXVI. 121 (non Siebold & Zuccarini) (1890). — Diels in *Bot. Jahrb.* XXIX. 534 (1900).
Gardneria multiflora Makino in *Tokyo Bot. Mag.* VI. 53 (nomen nudum) (1892).
Pseudogardneria multiflora Pampanini in *Nuov. Giorn. Bot. Ital.* n. ser. XVII. 691 (1910).

Western Hupeh: Hsing-shan Hsien, thickets, alt. 300–1000 m., July 1907 (No. **1941**; scandent shrub 2–3 m., flowers white); without locality, *A. Henry* (No. 6016). Western Szech'uan: near Washan, thickets, alt. 1300 m., September 1908 (No. **2958**; climber, 3 m.); without locality, July 1904 (Veitch Exped. No. 4810). Yunnan: Mengtze, mountains south-west, alt. 1600 m., *A. Henry* (No. 9581[a]; large climber, fruit red).

This is a rather common low-level climber in western Hupeh and Szech'uan. Our specimens differ from Makino's description only in the perfectly glabrous style. The leaves vary considerably in size, and in some specimens are as large as those of *G. ovata* Wallich.

Besides this species there occurs in China one other undescribed species, the description of which is given below with a short note on the genus *Pseudogardneria*.

Gardneria lanceolata Rehder & Wilson, n. sp.

Frutex scandens, glaberrimus, ramis ramulisque teretibus. Folia subcoriacea, lanceolata v. oblongo-lanceolata, acuminata, basi cuneata, integra, 6–9 cm. longa et 1–2.5 cm. lata, supra atroviridia, nitentia, subtus pallidiora, nervis utrinsecus 5–7 inconspicuis; petioli subteretes, 5–10 mm. longi. Flores axillares, in parte inferiore ramulorum plerumque ex axillis bractearum subulatarum vix 1 cm. longorum orientes, plerumque solitarii, albi, pentameri; pedicelli 1.5–2 cm. longi, circa medium bi- v. uni-bracteolati, bracteolis minutis subulatis acuminatis; calyx persistens, cupularis, lobis rotundatis breviter subito acuminulatis minute ciliolatis; corolla caduca, rotata, tubo 1 mm. longo, lobis 5, lanceolatis acutis reflexis, 8 mm. longis et 2–3 mm. latis, antheris fere sessilibus glabris 7 mm. longis, bilocularibus, in tubum connatis; ovarium globosum, glabrum; stylus cylindricus, 7 mm. longus, stigmate indistincte bilobo fusco. Fructus non visus.

Western Szech'uan: without precise locality, July 1904 (Veitch Exped. No. 4809).

Gardneria lanceolata is most nearly related to *G. ovata* Wallich which is easily distinguished by its broader leaves, several-flowered peduncles and tetramerous flowers with shorter and broader petals and shorter anthers of a different structure; from all the other species it differs in its connate anthers.

The structure of the androecium in this new species seems to show that the combination of characters on which Raciborski relied, when he separated *Pseudogardneria* from *Gardneria* proper, is not constant; for *G. lanceolata* has the connate anthers of typical *Gardneria*, but they are two-celled and the flowers five-merous as in *Pseudogardneria*. We have therefore retained *Gardneria* in its older and wider conception.

BUDDLEIA L.

Buddleia Lindleyana Fortune apud Lindley in *Bot. Reg.* XXX. Misc. Notes, 25 (1844); in *Bot. Reg.* XXXII. t. 4 (1846).—Paxton, *Mag. Bot.* XIV. t. 5 (1848). — Bentham, *Fl. Hongk.* 231 (1861). — Moore in *Jour. Bot.* XVI. 138 (1878). — Maximowicz in *Bull. Acad. Sci. St. Pétersbourg*, sér. 3, XXVI. 495 (1880); in *Mél. Biol.* X. 674 (1880). — Franchet in *Nouv. Arch. Mus. Paris*, sér. 2, VI. 90 (*Pl. David.* I. 210) (1883). — Hemsley in *Jour. Linn. Soc.* XXVI. 119 (1889). — Dunn & Tutcher in *Kew Bull. Misc. Inform.* add. ser. X. 174 (*Fl. Kwangtung and Hongkong*) (1912). — Gagnepain in Lecomte, *Not. Syst.* II. 186 (1912).

Kiangsi: Kiukiang, roadsides, alt. 100 m., July 27, 1907 (No. **1516**; bush 1–2 m. tall, flowers purple). Western Szech'uan: near Wa-shan, valley of Tung river, alt. 1000–1300 m., July and November 1908 (No. **1375**[a]; bush 1–1.5 m. tall, flowers dark red); without precise locality, banks of the Yangtsze, June 1903 (Veitch Exped. No. 4116). Kiangsu: Shanghai, *Faber*. Fokien: without locality, Dunn's Exped. 1905 (Herb. Bot. Gard. Hongkong, No. 2930).

Buddleia Lindleyana, var. **sinuato-dentata** Hemsley in *Jour. Linn. Soc.* XXVI. 120 (1889).—Dop in *Bull. Soc. Bot. France*, LVII. Mém. XIX. 9 (1910). — Gagnepain in Lecomte, *Not. Syst.* II. 186 (1912).

Western Szech'uan: Yachou Fu, thickets, alt. 600–1300 m., July and November 1908 (No. **1375**; bush 1–1.5 m. tall, flowers very dark red). Western Hupeh: without locality, *A. Henry* (No. 3979).

This very distinct looking variety is much less common than the type and is usually found at greater altitudes. The leaves in our specimen are very large (9.5 cm. long, 4.5 cm. wide).[1]

[1] A species apparently closely allied to *B. Lindleyana* is the following:

Buddleia yunnanensis L. F. Gagnepain in Lecomte, *Not. Syst.* II. 192 (1912). Yunnan: without precise locality [probably near Szemao] *Bons d'Anty* (No.

Buddleia officinalis Maximowicz in *Bull. Acad. Sci. St. Pétersbourg*, sér. 3, XXVI. 496 (1880); in *Mél. Biol.* X. 675 (1880). — Hemsley in *Jour. Linn. Soc.* XXVI. 120 (1890). — Oliver in *Hooker's Icon.* XX. t. 1972 (1891). — Diels in *Bot. Jahrb.* XXIX. 535 (1900); in *Wiss. Ergeb. Exped. Filchner China Tibet*, X. 262 (1908). — Pampanini in *Nuov. Giorn. Bot. Ital.* n. ser. XVII. 691 (1910). — Dop in *Bull. Soc. Bot. France*, LVII. Mém. XIX. 8 (1910). — *Gard. Chron.* ser. 3, XLIX. 201 (1911). — Wright in *Bot. Mag.* CXXXVII. t. 8401 (1911). — Gagnepain in Lecomte, *Not. Syst.* II. 187 (1912).

Buddleia madagascariensis Hance in *Jour. Bot.* XX. 37 (non Lamarck) (1882).

Western Hupeh: Ichang, cliffs, etc., alt. 30–600 m., March 1907 (No. 844; bush 1–2.5 m., flowers lilac, orange eye, fragrant); same locality, March 24, 1908 (No. 4005); Ichang and neighborhood, March 1900 (Veitch Exped. No. 155); without locality, *A. Henry* (Nos. 1117, 3110, 7884).

In western Hupeh and in Szech'uan this is a common shrub in rocky places up to 1000 m. altitude. It is very floriferous, fragrant and ornamental.

Buddleia stenostachya Rehder & Wilson, n. sp.

Frutex 2–3-metralis; ramuli hornotini leviter quadrangulati v. fere teretes, tomento floccoso albido dense obtecti. Folia membranacea, lanceolato-oblonga v. lanceolato-ovata, longe acuminata, basi cuneata, 12–20 cm. longa et 3–6 cm. lata, plerumque crenato-serrata dentibus mucronulatis, rarius fere integra, supra obscure viridia, glabra v. fere glabra, subtus tomento lanuginoso albido dense obtecta, costa venisque supra impressis subtus elevatis; petioli tomentosi, 8–10 mm. longi. Paniculae plerumque tres in apice ramulorum, lateralibus saepe terminali longioribus, anguste cylindricae, 15–45 cm. longae et 2–5 cm. diam., tomentosae, e cymis congestis paucifloris breviter pedunculatis compositae; flores subsessiles; calyx 2.5–3.5 cm. longus, extus tomentosus, dentibus ovato-lanceolatis acutis erectis; corolla lilacina

437 ex Gagnepain); Szemao, forests, alt. 1500 m., *A. Henry* (No. 12214; shrub 1 m., flowers lilac).

Henry's specimen seems to differ slightly from the type of this species which we have not seen; the calyx does not reach quite to the middle of the corolla-tube, the leaves are slightly narrower and somewhat sinuately dentate and the inflorescence is shorter, not exceeding 4 cm. in the specimen before us. *Buddleia yunnanensis* seems most closely related to *B. Lindleyana* Fortune, but is easily distinguished from that species by its shorter straight corolla, by the larger calyx reaching about to the middle of the corolla tube and by the dense and short inflorescence.

fauce aurantiaco, extus pubescens v. tomentosa, tubo cylindrico intus supra medium villoso circiter 8 mm. longo, lobis rotundatis erecto-patentibus planis vix 2 mm. longis; stamina inter medium et apicem tubi inserta, antheris subsessilibus oblongis circiter 0.5 mm. longis; ovarium ovoideum, villosum basi excepta; stylus vix medium tubi attingens, glaber, 1 mm. longus, stigmate clavato. Capsula cylindrico-oblonga, acuta, 8–10 mm. longa et 2 mm. diam., tomentosa, corolla persistente partim inclusa et stylo persistente coronata; semina fusiformia, 2.8–3 mm. longa, nigra.

Western Szech'uan: Mupin, thickets, alt. 1300–1600 m., October 1908 (No. **1351**, type). Cultivated at the Arnold Arboretum, September 10, 1912 (flowering specimens).

This new species seems most closely related to *B. officinalis* Maximowicz which differs chiefly in its broader and shorter panicles and shorter ovoid obtuse capsules. In general appearance it somewhat resembles *Buddleia nivea* Duthie, which has a much shorter corolla with the anthers affixed immediately below the mouth, a relatively long calyx and short, stout fruit.

Buddleia asiatica Loureiro, *Fl. Cochin.* 72 (1790). — Bentham in De Candolle, *Prodr.* X. 446 (1846); *Fl. Hongk.* 231 (1862). — Hance in *Jour. Linn. Soc.* XIII. 112 (1873). — Hooker f. in *Bot. Mag.* CIII. t. 6323 (1877). — Maximowicz in *Bull. Acad. Sci. St. Pétersbourg*, sér. 3, XXVI. 495 (1880); in *Mél. Biol.* X. 674 (1880). — Clarke in Hooker f., *Fl. Brit. Ind.* IV. 82 (1883). — Hemsley in *Jour. Linn. Soc.* XXVI. 119 (1889). — Wilson in *Flora & Sylva*, III. 336 (1905). — Berger in *Gard. Chron.* ser. 3, XXXIX. 106, fig. 44 (1906). — *Garden*, LXIX. 89, fig. (1906). — Dop in *Bull. Soc. Bot. France*, LVII. Mém. XIX. 8 (1910). — Dunn & Tutcher in *Kew Bull. Misc. Inform.* add. ser. X. 174 (*Fl. Kwangtung and Hongkong*) (1912). — Gagnepain in Lecomte, *Not. Syst.* II. 189 (1912).

Buddleia salicina Lamarck, *Ill.* I. 291 (1791).
Buddleia Neemda Buchanan-Hamilton apud Roxburgh, *Fl. Ind.* I. 411 (1820). — Wallich, *Cat.* No. 6401 (1828). — Hance in *Jour. Linn. Soc.* XIII. 112 (1873).
Buddleia serrulata Roth, *Nov. Pl. Sp.* 82 (1821).
Buddleia discolor Roth, *Nov. Pl. Sp.* 83 (1821). — Wight, *Icon.* III. t. 894 (1843–1850).
Buddleia subserrata D. Don, *Prodr. Fl. Nepal.* 92 (1825).
Buddleia acuminatissima Blume, *Bijd. Fl. Ned. Ind.* 743 (1826).
Buddleia virgata Blanco, *Fl. Filip.* 57 (1837).

Eastern Szech'uan: Wan Hsien, banks of Yangtsze river, sandy places, alt. 30–300 m., March and April 1908 (No. **3362**; bush 1–2 m.

tall, flowers white, fragrant). Hupeh: without locality, *A. Henry* (No. 3456). Yunnan: vicinity of Mengtze, ravines, alt. 1500–1600 m., *A. Henry* (Nos. 10443, 10443[b], 10443[c]); Che-yuan, *A. Henry* (No. 10443[a]); Szemao, alt. 1600 m., *A. Henry* (Nos. 10,443[d], 11679). Formosa: south Cape, *A. Henry* (No. 200); Tamsui, 1903 *N. Faurie* (No. 465).

Not common in western China; occurring as a river-bank shrub on the sandy reaches of the Yangtsze and its affluents up to 500 m. altitude. A picture of this shrub in bloom will be found under No. 0227 of the collection of Wilson's photographs.

Buddleia Davidii Franchet in *Nouv. Arch. Mus. Paris*, sér. 2, X. 65 (*Pl. David.* II. 103) (1887). — Gagnepain in Lecomte, *Not. Syst.* II. 188 (1912).

Buddleia variabilis Hemsley in *Jour. Linn. Soc.* XXVI. 120 (1889). — Hooker f. in *Bot. Mag.* CXXIV. t. 7609 (1898). — Diels in *Bot. Jahrb.* XXIX. 535 (1900). — Henry in *Rev. Hort.* 383, figs. 166–167 (384). — Wilson in *Flora & Sylva*, III. 339 (1905). — Pampanini in *Nuov. Giorn. Bot. Ital.* n. ser. XVII. 691 (1910). — Dop in *Bull. Soc. Bot. France*, LVII. Mém. XIX. 9 (1910). — Schneider, *Ill. Handb. Laubholzk.* II. 845, fig. 530 f–g, 531 d–i (1912).

Western Hupeh: north and south of Ichang, by the side of streams, alt. 1300–2000 m., August and September (No. **613**[a]; bush 1–2.5 m. tall, flowers purple); Hsing-shan Hsien, thickets, alt. 1300–2300 m., August and October 1907 (No. **3347**; bush 1.5–2 m. tall, flowers purple); without locality, *A. Henry* (Nos. 4166[a], 3285). Eastern Szech'uan: south Wushan, July 1900 (Veitch Exped. No. 1347, in part). Western Szech'uan: Mupin, side of streams, alt. 2300 m., August 1908 (No. **3349**; bush 1–2 m., flowers purple); west and near Wên-ch'uan Hsien, side of streams, alt. 1300–2000 m. July 1908 (No. **3350**; bush 2 m. tall, flowers rose-purple); Tachien-lu, roadside thickets, alt. 1600–2600 m., June 1908 (No. **3355**; bush 1.5–2 m. tall, flowers light purple); Mt. Omei, 1904 (Veitch Exped. No. 5038); Min Valley, alt. 2100 m., August 1903 (Veitch Exped. No. 4120); Nanch'uan, *A. von Rosthorn* (Nos. 438, 3007).

Buddleia Davidii, var. **magnifica** Rehder & Wilson, n. comb.

Buddleia variabilis magnifica Wilson in *Flora & Sylva*, III. 340, fig. (1905). — *Garden*, LXIX. 278, fig. (1906). — De Corte in *Rev. Hort. Belge*, XXXIII. 281, fig. (1907). — Schneider, *Ill. Handb. Laubholzk.* II. 846 (1912).

Western Hupeh: Hsing-shan Hsien, thickets, alt. 1600–2300 m., July 1907 (No. **613**, flowering shoot only; bush 2 m. tall, flowers

vinous-purple, fragrant); Patung Hsien, side of streams, alt. 1300–2000 m., August 1907 (No. **3346**; bush 1.5–2.5 m. tall, flowers rosy-purple, fragrant); without locality, June 1900 (Veitch Exped. No. 1249), *A. Henry* (No. 7008). Western Szech'uan: Lungan Fu, Tu-ti-liang-shan, alt. 1800 m., August 1910 (No. **4639**; bush 2–2.5 m. tall, flowers violet-purple).

This is the handsomest of all the varieties and is distinguished by its large, bright, violet-purple flowers with a deep orange eye and by the always reflexed margins of the petals. The panicles are long and densely flowered. This variety is a conspicuous feature in August by the sides of mountain streams up to 2000 m. altitude. A picture of this shrub will be found under No. 0256 of Wilson's collection of photographs.

Buddleia Davidii, var. **superba** Rehder & Wilson, n. comb.

Buddleia variabilis, var. *superba* De Corte in *Rev. Hort. Belge*, XXXV. 12 fig. (1909).

Western Hupeh: Hsing-shan Hsien, side of stream, alt. 1600–2300 m., October 1907 (No. **613**, fruiting branch only; bush 2 m. tall). Western Szech'uan: Mupin, thickets, alt. 2000–2600 m., September 1908 (No. **3352**; bush 1.5–2 m. tall, flowers purple, fragrant).

This variety is distinguished by its extremely dense flowered panicles and flat corolla lobes, fimbriated but not reflexed on the margins. The habit is erect and arching, and the flowers are rose-purple with a deep orange eye.

Buddleia Davidii, var. **Wilsonii** Rehder & Wilson, n. comb.

Buddleia variabilis, var. *Wilsonii* Hort in *Gard. Chron.* ser. 3, XXXVI. 155 (nomen nudum) (1904). — Wilson in *Flora & Sylva*, III. 340, (1905). — Schneider, *Ill. Handb. Laubholzk.* II. 847 (1912).

Western Hupeh: Hsing-shan Hsien, alt. 1600–2000 m., August 1907 (No. **3348**; bush 2.5 m. tall, flowers lilac-purple).

This variety is distinguished by its long, rather laxly flowered pendant panicles and sub-erect corolla lobes, with crinkled and reflexed margins. The internodes are very long, the leaves long and tapering, and the flowers larger than those of any other variety and of a bright rose-lilac color.

Buddleia Davidii, var. **alba** Rehder & Wilson, n. var.

A typo recedit floribus albis, foliis anguste lanceolatis utrinque angustatis 6–7 cm. longis et 10–12 mm. latis, minute serrulatis.

Western Szech'uan: Lungan Fu, Tu-ti-liang-shan, alt. 1800 m., August 1910 (No. **4638**; one bush only was seen).

Buddleia albiflora Hemsley in *Jour. Linn. Soc.* XXVI. 118 (1889). — Wilson in *Flora & Sylva*, III. 335 (1905). — Schneider, *Ill. Handb. Laubholzk.* II. 845, fig. 530 d (1912).

Buddleia Hemsleyana Koehne in *Gartenfl.* LII. 170 (1903). — Wilson in *Flora & Sylva*, III. 337 (1905).

Buddleia albiflora, var. *Hemsleyana* Schneider, *Ill. Handb. Laubholzk.* II. 845, fig. 530[e] (1912).

Western Hupeh: Fang Hsien, thickets, alt. 1600 m., July 1907 (No. **3360**; bush 1–1.5 m. tall, flowers lilac); same locality, alt. 1600–2500 m., August 1907 (No. **3361**; bush 2.5 m. tall, flowers lilac); Hsing-shan Hsien, 2000 m., July 1907 (No. **3361**[a]; bush 1–2.5 m. tall, flowers lilac); north and south of Ichang, alt. 1300–2300 m., July 1907 (No. **3361**[b]; bush 1–3 m. tall, flowers pale lilac, orange eye); Changyang Hsien, thickets, alt. 1600–2500 m., July 1907 (No. **3361**[c]; bush 3 m. tall, flowers lilac-pink); without locality, July 1901 (Veitch Exped. Nos. 2247, 2247[a]), *A. Henry* (Nos. 156[a], 2351 in part, 4689, 6193).

Owing to inaccurate information supplied by one of Henry's Chinese collectors, this plant was originally described as a tree 20–30 ft. tall, with white flowers, whereas it is a bush never exceeding 4 m. in height and the flowers are always lilac colored. It is a variable species but may be easily distinguished from *B. Davidii* Franchet which has four-angled stems by its round stems and small flowers, with the stamens inserted immediately below the mouth of the corolla-tube.

Buddleia Hemsleyana Koehne differs only in the usually pubescent calyx; in this and in other respects it is intermediate between the type and the var. *Giraldii*. Koehne describes his plant without an orange-colored corolla throat but in specimens from cultivated plants before us we find this color present but covered by the zone of villose hairs. To us the differences seem too slight to warrant the separation of Koehne's plant from Hemsley's *Buddleia albiflora*.

Buddleia albiflora is a common shrub in the mountain thickets up to 2500 m., especially in open, moist situations. Henry's No. 10915, a fruiting specimen, from Mengtze, Yunnan, probably belongs here.

Buddleia albiflora, var. **Giraldii** Rehder & Wilson, n. comb.

Buddleia Giraldii Diels in *Bot. Jahrb.* XXIX. 535 (1900).

Western Szech'uan: Lungan Fu, Tu-ti-liang-shan, upland, thickets and open grassy places, alt. 2000–2600 m., August 1910 (Nos. **4640, 4641**; bushes 1–2.5 m. tall, flowers lilac); without precise locality, alt. 1300 m., August 1903 (Veitch Exped. No. 4117. Shensi: "Mte. Kan-y-qua," July 1897, and "Ta-sce-tsuen," September 1897, *G. Giraldi*. Central China: without locality, *Hugh Scallan*.

The flowers, shoots and under surface of the leaves of this plant are covered with a fulvous-gray, rather loose tomentum which readily distinguishes this variety from the type.[1]

Buddleia nivea Duthie in *Gard. Chron.* ser. 3, XXXVIII. 275, fig. 102 (1905). — Wilson in *Flora & Sylva*, III. 339 (1905). — Bean in *Kew Bull. Misc. Inform.* 1910, 392. — Schneider, *Ill. Handb. Laubholzk.* II. 844, fig. 530 h, 531 b–c (1912).

Western Szech'uan: Wa-shan, thickets, alt. 1300–2000 m., August 1908 (No. **3358**; bush 1.5–2.5 m. tall, flowers purple); south-east of Tachien-lu, Tung valley, alt. 1300–2000 m., August 1908 (No. **3356**; bush 1–1.5 m. tall, flowers lilac purple); Wa-shan, alt. 2000–2600 m., July 1903 (Veitch Exped. No. 4121 and seed No. 1428, type).

A rather rare plant. Duthie describes the calyx as one-third the length of the corolla-tube, whereas, as shown in the figure accompanying his description, it is half as long as the corolla-tube.

Buddleia nivea, var. **yunnanensis** Rehder & Wilson, n. comb.

Buddleia macrostachya, var. *yunnanensis* Dop in *Bull. Soc. Bot. France*, LVII. Mém. XIX. 7 (1910).

[1] An allied species is the following:

Buddleia alata Rehder & Wilson, n. sp.

Frutex 2-metralis; ramuli hornotini sparse stellato-pilosi quadrialati alis ad 1.5 mm. latis. Folia membranacea, lanceolata v. oblongo-lanceolata, acuminata, basi cuneata, serrata dentibus late triangularibus v. rotundatis mucronatis, 14–28 cm. longa et 4–7 cm. lata, supra laete viridia, glabra, subtus tomento fulvo-cinereo tenui obtecta costa media glabrescente excepta, costa nervis venulis supra leviter impressis subtus elevatis; petioli fulvo-tomentosi, glabrescentes, circiter 1 cm. longi. Paniculae plures, anguste cylindricae, 10–20 longae et 1.5–2.5 diam., laxe fulvo-tomentosae e cymis plurifloris inferioribus breviter v. brevissime pedunculatis superioribus sessilibus et paucifloris bracteis bracteolisque subulatis instructis compositae; flores subsessiles v. brevissime pedicellati; calyx campanulatus, extus fulvo-tomentosus, 3 mm. longus, dentibus triangularibus 1 mm. longis; corolla lilacina, extus tomentosa, tubo 5 mm. longo intus in parte superiore villoso; stamina paullo infra faucem inserta, filamentis brevissimis, antheris ovato-oblongis basi cordatis apice fere basim limbi attingentibus; ovarium villosum; stylus tubo paullo brevior, stigmate clavato. Capsula (juvenilis) cylindrico-oblonga, acuta, sparse villosa, basi calyce et corolla persistente plus minus fissa circumdata.

Western Szech'uan: without precise locality, in a ravine, alt. 1300 m., August 1903 (Veitch Exped. No. 4118).

Buddleia alata differs from all the allied species in its four-winged stems. It seems most nearly related to *B. albiflora* Hemsley, which is, however, easily distinguished by its glabrous or glabrescent corolla, by the glabrous ovary, shorter style and by the subterete stems.

Western Szech'uan: west and near Wên-ch'uan Hsien, Min Valley, roadside thickets, alt. 1300–1600 m., May 25, 1908 (No. 3353); same locality, alt. 1300–2100 m., August 1908 (No. 3359); same locality, 1300–2000 m., October 1910 (No. 4389); vicinity of Tachien-lu, thickets, alt. 1300–3800 m., July and August 1908 (Nos. 3357, 3351); vicinity of Tachien-lu, dry regions, Tung Valley, alt. 1300–2000 m., October 1910 (No. 4403); Mupin, thickets, alt. 1600–2000 m., July and October 1908 (Nos. 3354, 1351[a]); without precise locality, alt. 2500 m., July 1903 (Veitch Exped. No. 4119).

This variety is much more widely distributed than the type and is readily distinguished by its usually solitary terminal panicle and much larger flowers attaining 5 mm. in diameter; the leaves are usually pubescent above and vary in size and are sometimes nearly entire, coarsely serrate or sinuately-toothed. The young branches are often nearly square. Very rarely the primary panicle is subtended by one or two short lateral panicles whereas in the type there are always several panicles clustered at the ends of the shoots. In No. 3354 the peduncles of the cymes are unusually long and in consequence form a rather lax caudate panicle. No. 3357 differs in having short calyx-teeth. It is possible that more than one variety should be distinguished in the above numbers but all gradations are present. No. 4119 is one of the specimens quoted by Dop for his *B. macrostachya*, var. *yunnanensis*.

Here may be added the following species from Yunnan:

Buddleia Henryi Rehder & Wilson, n. sp.

Frutex 2–5-metralis v. arbor 6-metralis v. ultra; ramuli hornotini leviter angulati laxe cinereo-tomentosi. Folia membranacea, lanceolata v. lanceolato-oblonga, utrinque sensim attenuate, acuminata, 12–35 cm. longa et 2.5–7.5 cm. lata crenato-serrata dentibus brevibus mucronulatis, v. rarius subintegra, supra obscure viridia et glabra, subtus dense cinereo-tomentosa, costa venisque supra impressis subtus elevatis; petioli tomentosi, 0.5–2 cm. longi. Paniculae plures in apice ramulorum, anguste cylindricae, 12–25 cm. longae et circiter 2 cm. diam., e cymis approximatis 2–6-floris fere sessilibus v. basin versus brevissime pedunculatis bracteis bracteolisque subulatis instructis compositae, stellato-pilosae; flores sessiles v. ad 2 mm. longe pedicellati pedicellis glabrescentibus v. glabris; calyx campanulatus, 2.5–3.5 mm. longus, sinuato-dentatus dentibus anguste triangularibus acuminatis 1–2 mm. longis, extus sparse stellato-pilosus v. fere glaber; corolla decidua, carnea tubo cylindrico, 7–8 mm. longa extus glabra pilis paucis ad basin limbi exceptis, intus sparse villosa, lobis patentibus rotundatis, circiter 2 mm. longis margine leviter irregularibus extus initio villosis; antherae subsessiles, ovato-oblongae, 1 mm. longae, apice basin limbi attingentes; ovarium ovoideum fulvo-tomentosum; stylus glaber, dimidium tubi superans, 3 mm. longus, stigmate clavato. Capsula (immatura) ovoideo-oblonga, acuta, fere glabra, pedicello recurvato.

Yunnan: south-east of Mengtze, woods and ravines, alt. 1600 m., *A. Henry* (Nos. 9025, type, 9025[b]).

This species is apparently most closely related to *B. longifolia* Gagnepain, which differs chiefly in the tube of the calyx being as long as its obtuse teeth, in the pedicellate flowers, the pedicels equalling the calyx, in the larger corolla and broader inflorescence. It is also related to *B. macrostachya* Wallich, but that species is

easily distinguished by its dense inflorescence with upright tomentose capsules, larger tomentose corolla and smaller firmer leaves. In *B. Henryi* and these two species the corolla is deciduous, while in most species of this genus it is persistent or at least tardily deciduous. This deciduous corolla and the distinctly recurved glabrous capsules give our species a very distinct appearance.

Buddleia macrostachya Wallich apud Bentham, *Scrophul. Ind.* 42 (1835); in De Candolle, *Prodr.* X. 447 (1846). — Clarke in Hooker f., *Fl. Brit. Ind.* IV. 81 (1885). — Dop in *Bull. Soc. Bot. France*, LVII. Mém. XIX. 7 (1910). — Gagnepain in Lecomte *Not. Syst.* I. 190 (1912).

Buddleia Martii Schmidt in *Jour. Bot.* VI. 245 (1868).

Yunnan: Feng-chen-lin, alt. 1600 m., *A. Henry* (No. 10251[a]); Mengtze, *A. Henry* (No. 10251); Szemao, western mountains, alt. 1600 m., *A. Henry* (Nos. 10251[c], 10251[d]).

This species has not yet been reported from China, but the specimens quoted above agree exactly with specimens of *B. macrostachya* from the Khasia hills.

SCROPHULARIACEAE.

Determined by Alfred Rehder.

BRANDISIA Hook. f. & Thoms.

Brandisia Hancei, Hooker f., *Fl. Brit. Ind.* IV. 257 (1885). — Hemsley in *Jour. Linn. Soc.* XXVI. 179 (1890).

Brandisia discolor Hance in *Jour. Linn. Soc.* XVIII. 299 (non Hooker f. & Thomson) (1880).

Western Hupeh: Ichang, scrub-clad hillsides, alt. 30–300 m., March 1907 (No. 3404); without locality, *A. Henry* (No. 1150); Nanto and mountains to the northward, *A. Henry* (No. 3007). Yunnan: Mengtze, alt. 1600 m., *A. Henry* (No. 9013; slender shrub, 1 m., flowers yellow).

No good description of this species has been published so far, but according to Dr. A. B. Rendle of the British Museum who kindly compared Wilson's No. 3404 with the type of *B. Hancei* Hook. f. from Kweichou, there is no difference between the two specimens. Wilson's specimen also agrees perfectly with Henry's specimen from Hupeh referred by Hemsley to *B. Hancei*. Henry's No. 9013 from Yunnan differs slightly in its smaller and narrower leaves.

Besides the preceding the four following species occur in Yunnan:

Brandisia discolor Hooker f. & Thomson in *Jour. Linn. Soc.* VIII. 11, t. 4 (1865). — Hooker f., *Fl. Brit. Ind.* IV. 257 (1885). — Brandis, *Ind. Trees*, 491 (1906).

Yunnan: Szemao, forests, alt. 1300 m., *A. Henry* (No. 12605[b], climbing shrub, to 5 m., yellow flowers).

Brandisia laetevirens Rehder, n. sp.

Frutex 2–3-metralis, sarmentosus; ramuli hornotini fulvo-tomentosi. Folia chartacea, verisimiliter persistentia, ovato-oblonga, acuminata v. acuta, basi rotundata v. leviter subcordata, 4.5–8 cm. longa at 1.8–3 cm. lata, margine integra et leviter revoluta, supra initio sparse fasciculato-pilosa, mox glabrescentia et glabra, laevia, laete luteo-viridia (in sicco), subtus dense tomento fasciculato albo v. flavescente obtecta, reticulata, nervis utrinsecus 5–6 supra ut costa impressis subtus elevatis; petioli stellato-tomentosi, circiter 5 mm. longi. Flores axillares, solitarii v. bini; pedunculi graciles, fulvo-tomentosi, 8–10 mm. longi, pendentes medio bibracteati bracteis subulatis calycis basim plerumque paullo superantibus; calyx campanulatus, 10-costatus, circiter 1 cm. longus, extus tomento flavido obtectus, intus dense sericeus, lobis ovato-triangularibus acutis 3.5–4 mm. longis, sinubus acutis; corolla late campanulata, leviter curvata, bilabiata circiter 2 cm. longa, lutea (ex Henry), extus pallide stellato-tomentosa ima basi excepta, limbo intus tomentoso, tubo intus glabro, labio postico magno truncato leviter emar-

ginato, antico 3-lobo fere dimidio breviore lobis ovatis acutis; stylus glaber, corollae subaequilongus; ovarium dense tomentosum. Capsulam non vidi.

Yunnan: Szemao, eastern mountains, alt. 1300 m., *A. Henry* (No. 12605).

Brandisia laetevirens is most closely related to *B. discolor* Hooker f. & Thomson, which differs chiefly in its smaller 5–ribbed calyx with smaller and narrower teeth separated by wide sinuses, narrower corolla covered outside with brown tomentum and in its slenderer petioled leaves dark green above and in the dried state almost black.

Brandisia glabrescens Rehder, n. sp.

Frutex 2-metralis, gracilis; ramuli tomento fulvo floccoso obtecti, demum glabrescentes. Folia chartacea, ovato-oblonga, longe acuminata, basi rotundata v. late cuneata, integra v. sparse minuteque serrulata, 5–9 cm. longa et 1.5–3.5 cm. lata, supra initio sparsissime stellato-pilosa, mox glabra, atroviridia, subtus pallidiora, sparse, ad venas densius stellato-pilosa, demum glabrescentia et plerumque ad venas tantum stellato-pilosa, nervis utrinsecus 6–7 subtus elevatis et trabeculis elevatis conjunctis; petioli tomentosi, 5–8 mm. longi. Flores axillares, solitarii v. bini superpositi; pedicelli graciles, circiter 1 cm. longi, floccoso-tomentosi, supra medium bibracteati bracteis subulatis basim calycis paullo superantibus; calyx campanulatus, 1.5–2 cm. longus, leviter 10-costatus, minute et sparse, basim versus densius stellato-pilosus, intus pilosus, dentibus late ovatis acuminulatis 5 mm. longis; corolla bilabiata, gibboso-curvata, 2.5–3 cm. longa, lutea (ex Henry), extus dense stellato-tomentosa, tubo intus glabro, limbo intus tomentoso, labio postico magno truncato, antico 3-lobato fere dimidio breviore, lobis ovatis subaequalibus; stamina stylusque corollae subaequilonga; stylus glaber; ovarium dense tomentosum. Capsula ovoideo-oblonga, demum glabrescens, circiter 1.5 cm. longa.

Yunnan: Mengtze, forest, alt. 2000 m., *A. Henry* (No. 9176ª); south of Red River from Manmei, alt. 2300 m., *A. Henry* (No. 9716).

Brandisia glabrescens is related to *B. discolor* Hooker f. & Thomson, which is easily distinguished by its leaves densely tomentose beneath, by the much smaller calyx also densely tomentose on the outside and by the smaller, less curved corolla. In its large calyx *B. glabrescens* somewhat resembles *B. Hancei* Hooker f. which, however, differs from it in its short-petioled cordate leaves, densely tomentose beneath and rugulose above.

Brandisia racemosa Hemsley in *Kew Bull. Misc. Inform.* 1895, 114. — Oliver in *Hooker's Icon.* XXIV. t. 2383 (1895). — Schneider, *Ill. Handb. Laubholzk.* II. 618, fig. 399 c–h (1911).

Yunnan: Mengtze, alt. 1600 m., *A. Henry* (No. 9973; hanging down from cliffs, 1 m. long, scarlet flowers).

With its pendulous racemes of large scarlet flowers, this is the most beautiful member of the genus. It was introduced by Mr. Wilson into cultivation, but it could not be grown successfully, as it is apparently parasitic and its proper host-plant is not known.

PAULOWNIA Sieb. & Zucc.

Paulownia tomentosa K. Koch, var. **lanata** Schneider, *Ill. Handb. Laubholzk.* II. 618 (1911).

Paulownia imperialis, var. *γ. lanata* Dode in *Bull. Soc. Dendr. France*, 1908, 160.

Western Hupeh: Fang Hsien, woods, alt. 1300–2000 m., May 21 and 26 and October 1907 (No. **769**; tree 6–14 m., 0.3–2 m. circumference, flowers violet-purple, throat yellow).[1]

Paulownia Fargesii Franchet in *Bull. Mus. Hist. Nat. Paris*, II. 280 (1896). — Dode in *Bull. Soc. Dendr. France*, 1908, 161. — Schneider, *Ill. Handb. Laubholzk.* II. 618 (1911).

Western Szech'uan: Yung-king Hsien, alt. 1250 m., May 1904 (Veitch Exped. No. 4207; tree 7 m., flowers lavender, fragrant); Washan, common, alt. 300–1300 m., June 1908 (No. **3170**, in part; tree 12–20 m. tall, circumference 1–2 m.).

Wilson's No. 3170[a] lacks the long hairs on the young branchlets, petioles and veins, and the young leaves are thinly tomentose beneath with glabrous veins, otherwise in the shape of the calyx and in the inflorescence it agrees with Wilson's No. 4207 which answers the description of *P. Fargesii* in every respect, except that the flowers, according to Wilson's note, are lavender, though in the dried state they certainly look white. A picture of this tree will be found under Nos. 47 and 79 of Wilson's photographs and also in his *Vegetation of Western China*, Nos. 330 and 331. Henry's No. 10831 from Mengtze, Yunnan, agrees in many respects with Wilson's No. 3170[a], but the leaves are more densely pubescent, about as much as those of *P. tomentosa;* the flowers are mauve colored according to Henry's notes and are shorter and broader; in the shape and tomentum of the calyx, however, the two specimens perfectly agree.

[1] A new species related to *P. tomentosa* is the following:

Paulownia glabrata Rehder, n. sp.

Arbor ramulis pallide flavo-cinereis glabris. Folia membranacea, anguste triangulari-ovata, acuminata, basi truncata, 15–18 cm. longa et 11–12 cm. lata, maturitate laete viridia, concoloria, supra glabra pilis sparsis ad costam nervosque exceptis, subtus fere glabra pilis sparsissimis stellatis exceptis; petioli glabri v. apicem versus puberuli, 4–9 cm. longi. Flores desiderantur. Panicula fructifera sine pedunculo circiter 20 cm. longa; rhachis glabra; cymae 2–3(–4)-florae, pedunculo partiali circiter 1 cm. longo glabrescenti insidentes; pedicelli 1.5–2 cm. longi, fulvo-tomentosuli; calyx extus intusque dense fulvo-tomentosus, ultra medium partitus, lobis oblongo-ovatis obtusis. Capsula ovoidea, subito in rostrum contracta, 3 cm. longa, tomentosula.

Shensi: foot of Ta-pei-shan, 1910, *W. Purdom*.

It is with some hesitation that I describe this specimen without flowers as a new species, but it can neither be united with *P. tomentosa* K. Koch, which it resembles in the inflorescence, nor with *P. Fargesii* Franchet, which it resembles in its leaves. The former species differs in its broader leaves cordate at the base and always, even late in the season, tomentose beneath and in its broader and shorter calyx-lobes, while *P. Fargesii* Franchet is distinguished by its triangular-ovate, acutish calyx-lobes, by the calyx-tube glabrous on the inside, by its glandular ovary and by the almost sessile cymes of the inflorescence which gives it a narrow, thyrsoid-like look; at the base it bears usually two elongated equally thyrsoid branches.

Paulownia thyrsoidea Rehder, n. sp.

Arbor 7-metralis, ramis robustis; ramuli hornotini villoso-hirsuti, annotini glabri, griseo-brunnei, lenticellati. Folia (juniora nondum matura tantum vidi) membranacea, late ovata, acuminata, basi leviter cordata v. truncata v. interdum e basi rotundata abrupta lateque cuneatim in petiolum protracta, remote sinuato-dentata v. sinuato-lobata lobis dentibusque latissimis brevissimisque mucronatis, circiter 8–10(–16) cm. longa et 7–9(–14) cm. lata, obscure viridia, concoloria, supra initio dense glandulosa, pilis longis hyalinis intermixtis, demum glabrescentia, subtus vix glandulosa pilis brevibus hyalinis sparse conspersa fasciculatis v. ramosis paucis intermixtis, ad venas densius pilosa, margine pilis hyalinis ciliata; petioli 3–12 cm. longi, initio dense pilis hyalinis hirsuti, glabrescentes. Inflorescentia magna, 20–30 cm. longa, paniculata, deorsum axes laterales 10–18 cm. longos thyrsoideos oppositos glabros v. glabrescentes gerens, sursum thyrsoidea, ut axes laterales cymas breviter pedunculatas v. fere sessiles 2–3-floras rarius unifloras gerens; pedicelli dense fulvo-tomentosi, 6–10 mm. longi, pedunculo cymarum glabrescente interdum subnullo longiores; calyx turbinato-campanulatus, extus dense fulvo-tomentosus, intus ad marginem tantum tomentosus, ceterum glaber v. fere glaber, circiter 12–14 mm. longus, dentes triangulari-ovato-oblongi 6–9 mm. longi et 3.5–5 mm. lati, acutiusculi; corolla campanulata, extus breviter pilosa et stipitato-glandulosa, violaceo-coerulea, limbo bilabiato patente circiter 4 cm. diam., tubo circiter 3 cm. longo et 1 cm. diam., paullo supra basim curvato et angustato intus glabro, lobis rotundatis 1.5 cm. diam. intus in parte superiore breviter pilosis ciliolatis; stamina breviora dimidium tubum aequantia, glabra, antheris 2 mm. longis patentibus; stylus glaber glandulis paucis basim versus exceptis, staminibus brevioribus paullo longior, stigmate clavato paullo incrassato; ovarium glandulosum. Capsula ovoidea, leviter compressa, 2.5 longa et 14 mm. lata, loculicida et imperfecta septicida, parietibus cartilagineis fragilibus; semina nigra-brunnea, ovoidea, 1 mm. longa, cum alis hyalinis basi et apice emarginatis v. incisis circiter 3.5 mm. longa et 2.5 lata.

Western Hupeh: Ichang, cultivated, alt. 40 m., April 1907 (No. 3171, type). Fokien: without locality, Dunn's Exped., April to June 1905 (Herb. Bot. Gard. Hongkong, No. 3369).

Paulownia thyrsoidea seems most closely related to *P. Fargesii* Franchet which differs in its much larger, white or pale colored flowers with the tube of the corolla about 5 cm. long, in its more elongated, entire leaves and in the smaller inflorescence.

This new species is a handsome tree with its large, much branched panicles of lavender-colored flowers; it differs from all other species of the genus in the coarse dentation of the leaves. Its native habitat is still unknown; around Ichang it is only cultivated and the specimen from Fokien also may have been gathered from a cultivated tree.

Paulownia recurva Rehder, n. sp.

Arbor 12-metralis, trunco ambitu 1.30 m.; ramuli juniores tomento ochraceo-cinereo laxo obtecti, annotini cinereo-brunnei glabri. Folia membranacea (juniora tantum vidi) ovata, acuminata, basi rotundata v. truncata, circiter 10 cm. longa et 7 cm. lata, supra pilis brevibus simplicibus et fasciculatis conspersa glandulis intermixtis, subtus tomento villoso ochraceo-cinereo obtecta; petioli initio villoso-tomentosi. Inflorescentia paniculata, circiter 20 cm. longa, glabra; axes laterales infimae saepe elongatae et paniculatae, ceterum cymosae 5–1-florae manifeste pedunculatae pedunculis apicem versus decrescentibus 3.5–0.5 cm. longis glabris; pedicelli 1.5–2 cm. longi apicem versus tomentosuli; calyx extus fere glaber v. laxe tomentosa et glabrescens, cupuliformis, 1.5 cm. longus et 2 cm. diam. lobis erecto-patentibus ovatis 7–8 mm. longis apice rotundatis et recurvis, intus undique dense tomentosus; corolla campanulata, violaceo-purpurea, tubo 4–4.5 cm. longo et 1.5 cm. diam. paullo supra basim angustato et leviter curvato extus pilis brevibus basim versus densius consperso, limbo bilabiato 4 cm. diam., lobis subrotundatis intus breviter pilosulis; stamina glabra, tubum dimidium vix superantia; ovarium ovoideum, dense glandulosum; stylus basim versus glandulosus, 3.5 cm. longus, limbum fere attingens. Capsula desideratur.

Western Hupeh: Hsing-shan Hsien, woods, alt. 1600 m., May 1907 (No. 769[a]).

This species seems nearest to *P. tomentosa* K. Koch, which differs from it chiefly in its more densely fulvous-tomentose leaves, cordate or subcordate at the base, in the densely fulvous-tomentose outer surface of the calyx teeth which are not recurved at the apex and in the tomentose inflorescence. The other species with their calyx glabrous or glabrescent on the outside differ also in their campanulate calyx with acutish lobes much shorter than the calyx-tube, and in the longer and narrower corolla.

Paulownia Duclouxii Dode in *Bull. Soc. Dendr. France*, 1908, 162.

Western Hupeh: Ichang, alt., 300–1000 m. April 1907 (No. 3170; tree 6–15 m., trunk 0.60–2.30 m. diam., flowers white or lavender-purple).

Wilson's No. 3170 seems to agree fairly well with Dode's description of *P. Duclouxii*, of which I have not seen the type specimen. Dode, however, says it

differs from *P. Fortunei* Hemsley in its larger calyx, but in our specimen the calyx is about 2 cm. long, while in *P. Fortunei* it is 2.5 cm. long, and the corolla is shorter than that of *P. Fortunei*, not exceeding 7 or 8 cm. in length. A picture of this tree will be found under No. 485 of Wilson's photographs and also in his *Vegetation of Western China*, No. 332.

Paulownia Fortunei Hemsley in *Jour. Linn. Soc.* XXVI. 180 (1890).—Dode in *Bull. Soc. Dendr. France*, 1908, 162.

Campsis Fortunei Seemann in *Jour. Bot.* V. 373 (1867).
Paulownia imperialis Hance in *Jour. Bot.* XXIII. 326 (non Siebold & Zuccarini) (1885).

Kwangtung: Hongkong Botanic Garden, cultivated, April 5, 1909, *E. H. Wilson* (without number). Fokien: without locality, Dunn's Exped., April to June 1905 (Herb. Bot. Gard. Hongkong, No. 3369).

A picture of this species will be found under Nos. 655 (flowering tree) and 656 (panicle) of Wilson's photographs and also in his *Vegetation of Western China*, Nos. 328 and 329. To *P. Fortunei* or *P. Duclouxii* belongs apparently Henry's No. 10831[b] from Mengtze, Yunnan; the specimen consists only of mature leaves and a small panicle in bud.

CORRECTIONS.

Pinus Armandii (p. 1). In the synonym *Pinus Mastersiana* change date from 1898 to 1908.

Hydrangea Davidii (p. 25). Add as a synonym: *Hydrangea Arbostiana* Léveillé in *Bull. Acad. Intern. Geog. Bot.* XII. 115 (1903). — Cf. Rehder in *Mitt. Deutsch. Dendr. Ges.* XXI. 186 (1912).

Hydrangea xanthoneura, var. **glabrescens** (p. 27). This variety is to be referred to *H. Bretschneideri* as HYDRANGEA BRETSCHNEIDERI, var. GLABRESCENS Rehder. — Cf. Rehder in *Mitt. Deutsch. Dendr. Ges.* XXI. 186 (1912).

Hydrangea Bretschneideri, var. **setchuenensis** (p. 28). This variety is to be referred to *H. xanthoneura* as HYDRANGEA XANTHONEURA, var. SETCHUENENSIS Rehder in *Mitt. Deutsch. Dendr. Ges.* XXI. 186 (1912).

Hydrangea Bretschneideri, var. **lancifolia** (p. 28). This variety is to be referred to *H. xanthoneura* as HYDRANGEA XANTHONEURA, var. LANCIFOLIA Rehder in *Mitt. Deutsch. Dendr. Ges.* XXI. 186 (1912).

Hydrangea strigosa, var. **angustifolia** (p. 32). The citation of the synonym should read: *Hydrangea aspera*, var. ? *angustifolia* Hemsley in *Jour. Linn. Soc.* XXIII. 273 (1887).

Rubus simplex (p. 48). Date 1854 should read 1890.

Acer sutchuense (p. 97). Read ACER SUTCHUENENSE.

Ampelopsis heterophylla, var. **amurensis** (p. 100). The *A. heterophylla*, var. *amurensis* Planchon does not seem to occur in central and western China. Most of the specimens enumerated under this variety belong to the following species:

AMPELOPSIS MICANS Rehder in *Mitt. Deutsch. Dendr. Ges.* XXI. 188 (1912).

Vitis repens Veitch, *Novelties* 1908–1909, 8, fig. p. 29 (non Wight & Arnott) (1908).

Ampelopsis heterophylla, var. *amurensis* Gagnepain in Sargent, *Pl. Wilson.* I. 100 (pro parte, non Planchon) (1911).

Western Hupeh: (Nos. **157**, type, **129**, **159**, **2721**, **2723**), Veitch Exped. (Nos. **1141**, **1141**[a]).

Ampelopsis heterophylla, var. **cinerea** (p. 101). The two specimens enumerated under this variety belong to two different species:

AMPELOPSIS MICANS, **var.** CINEREA Rehder in *Mitt. Deutsch. Dendr. Ges.* XXI. 189 (1912).

Ampelopsis heterophylla, var. *cinerea* Gagnepain in Sargent, *Pl. Wilson.* I. 101 (pro parte) (1911).

Western Hupeh: (No. **2736**, type; also Nos. **168**, **2718**, **2719**, **2722** and *A. von Rosthorn's* No. 1557).

Only No. 2736 represents the typical form of this variety, all the other numbers are transitions toward the type of the species.

AMPELOPSIS HETEROPHYLLA, var. VESTITA Rehder in *Mitt. Deutsch. Dendr. Ges.* XXI. 189 (1912).

Ampelopsis heterophylla, var. *cinerea* Gagnepain in Sargent, *Pl. Wilson.* I. 101 (1911), quoad specimen No. 2720.

Western Hupeh: (No. 2720).

No. 1703 from Kiangsi belongs to *A. heterophylla*, but not to the var. *amurensis*; it is possibly a new variety.

Parthenocissus Henryana (p. 101). Wilson's No. 440 does not belong here, but is the type of the following species:

PARTHENOCISSUS LAETEVIRENS Rehder in *Mitt. Deutsch. Dendr. Ges.* XXI. 190 (1912).

Parthenocissus Henryana Gagnepain in Sargent, *Pl. Wilson.* I. 101 (1911), quoad specimen No. 440.

Western Hupeh: (No. 440, type; Veitch Exped. Nos. 1414, 1414[a], in part, flowering specimens only).

Parthenocissus himalayana, var. **rubrifolia** (p. 101). The synonym *Parthenocissus sinensis* Diels & Gilg belongs to *Vitis Piasezkii* Maximowicz. — Cf. Rehder in *Mitt. Deutsch. Dendr. Ges.* XXI. 192 (1912).

Lonicera pileata (p. 135). Wilson's No. 883 enumerated under this species is the type of the following species:

LONICERA NITIDA Wilson in *Gard. Chron.* ser. 3, L. 102 (1911).

Lonicera pileata Rehder in Sargent, *Pl. Wilson.* I. 135 (1911), quoad specimen No. 833.

Western Szech'uan: (No. 833).

Prunus pseudocerasus (p. 245). The *Prunus pseudocerasus* Lindley belongs to the subsect. *Ceraseidos* Koehne, ser. *Euceraseidos* Koehne; the name *P. pseudocerasus* as used in this work should be replaced by the following name:

PRUNUS SIEBOLDII Wittmack in *Gartenfl.* LI. 272 (1902). — Cf. Koehne in Fedde, *Rep. Nov. Sp.* XI. 267, 270 (1912) and in *Mitt. Deutsch. Dendr. Ges.* XXI. 182 (1912).

Prunus serrulata (p. 246). Instead of *Prunus donarium* Siebold read: *Prunus donarium* Koidzumi in *Tokyo Bot. Mag.* XXV. 259 (1911). — Cf. Koehne in Fedde, *Rep. Nov. Sp.* XI. 267 (1912).

Prunus Tschonoskii (p. 261). Add as a synonym: *Prunus crassipes* Koidzumi in *Tokyo Bot. Mag.* XXV. 260 (1911). — Cf. Koehne in Fedde, *Rep. Nov. Sp.* XI. 274 (1912).

Prunus triflora (p. 276). Professor Koehne informed us in his letter of December 10, 1912, that PRUNUS SALICINA Lindley in *Trans. Hort. Soc.* VII. 239 (1830), of which he had recently seen the type specimen, is the same as *P. triflora*, and the oldest name for this species, as *Prunus triflora* Roxburgh, though published as a nomen nudum as early as 1814, was not described until 1832.

Styrax Wilsonii (p. 293). Published independently two months later under the same name by Rolfe in *Bot. Mag.* CXXXVIII. t. 8444 (July 1912).

Pterostyrax hispidus (p. 295). Citation for *Halesia hispida* Masters should read: *Gard. Chron.* ser. 2, XXII. 176, fig. 34 (1884).

Forsythia suspensa (p. 302). Wilson's specimens differ somewhat from typical *F. suspensa*, var. *Fortunei*, and have been distinguished as:

FORSYTHIA SUSPENSA, var. FORTUNEI, f. ATROCAULIS Rehder in *Mitt. Deutsch. Dendr. Ges.* XXI. 193 (1912).

Forsythia suspensa Rehder in Sargent, *Pl. Wilson.* I. 302 (1912), quoad specimina citata.

Western Hupeh: (No. 637).

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